Economic Impact of Universities on our Regional Cities

Prepared by Regional Development Australia Mid North Coast

For

Mid North Coast Local Health District

2018

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Resources
Part of the modelling in this report has been undertaken using REMPLAN™ software that has been authored by Principal Research Fellow (ret.), Ian Pinge, at La Trobe University Bendigo.
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Project Description

Regional Development Australia Mid North Coast (RDAMNC) has prepared an economic assessment report in response to a request from Mid North Coast Local Health District (MNCLHD) to assess the economic impact of university presence (or absence) on regional towns and cities on the Mid North Coast (MNC) of NSW.

Why the Project is needed

The presence of a university campus in a regional town or city can have a significant impact upon economic prosperity of the relevant area. A university helps to retain young people, provides access to higher education, increases employment opportunities, generates housing demand and can create a cluster of supporting business opportunities. This report identifies some of these impacts, and also provides supporting data to guide universities on the gaps in courses offered, and to ensure courses align with regional skill shortages and employment needs in the region.

Project deliverables

- An assessment of courses offered on the MNC - including historical, current and future universities and courses;
- An assessment of students - including the number of students moving to the region to attend university; the number of students taking up university places outside the region and where graduates are taking up employment (geographical location);
- Identification of the key courses not currently on offer in the region (which would be viable to offer on the MNC);
- An Economic Impact Analysis of university presence on the Mid North Coast (assessed using data from REMPLAN);
- Economic opportunities for businesses as a result of the university presence.

Expected benefits

- To identify course demand, deficiencies and employment outcomes;

- To achieve detailed understanding of the higher education market on the MNC and its economic impacts;
- To identify current course gaps in the market and ensure courses align with regional skill shortages and employment needs;
- To identify economic opportunities associated with regional universities.

Glossary

- **CSU:** Charles Sturt University
- **Employment FTE:** Employment as Full-Time Equivalent. This enables comparisons to be made across different types of employment including full-time, part-time and casual employment.
- **Flow on impacts:** (The industrial effect and the consumption effect) - increased outputs by sectors in response to the initial or direct impact. This can also affect regional employment, value added and income.
- **GRP:** Gross Regional Product – total value of final goods and services produced by UMNC per annum.
- **Income:** Income to regional households as a result of the economic activity which can include employee consumption effects
- **Initial or direct impacts:** The value of changes resulting from operations and expenditure.
- **MNC:** Mid North Coast
- **MNCLHD:** Mid North Coast Local Health District
- **Output:** Gross revenue generated by UMNC, total income or sales.
- **RDAMNC:** Regional Development Australia Mid North Coast
- **SCU:** Southern Cross University
- **Total impacts:** Accounts for the direct impact and the flow on impacts to the local regional economy
- **UNE:** University of New England
- **UMNC:** Universities of the Mid North Coast
- **UoN:** University of Newcastle
- **UNSW:** University of New South Wales
- **Value added:** The contribution to overall GRP (Gross Regional Product). Equals the difference between the sectors output and the cost of intermediate inputs.

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Executive Summary

There are 39 university institutions with multiple campus locations throughout Australia[1], including the Mid North Coast (MNC) of NSW, which contains local campuses representing a number of university institutions in regional Australia. Currently, there are five universities present in the MNC, representing up to 12.8 % of the total university institutions in Australia, including the following:

- Southern Cross University in Coffs Harbour
- Charles Sturt University in Port Macquarie
- University of Newcastle in Port Macquarie
- University of New England in Taree
- University of New South Wales in both Port Macquarie and Coffs Harbour

The universities themselves are among some of the highest ranked universities across Australia and worldwide, placing the MNC in a prime position to offer leading university education and research opportunities in regional Australia. This report provides an estimation of the range of economic impacts the universities have on the MNC economy:

- **Employment** Overall, the education and training sector on the MNC is the fourth largest employer in the region at 9.4 % of all employment and of this, the tertiary sub-sector accounts for 1.4 % of all employment.
    - The Universities of the MNC (UMNC) provide up to 862 FTE jobs, or 1.2% of total employment full-time equivalent (FTE) on the MNC, making the university sector a significant employer in the region.

- **Output** The UMNC generate between $149.6 - $201.4 Million, or up to 81 % of the tertiary sector's total output on the MNC ($248.4 Million). Overall, the UMNC comprises up to 0.7 % of the total output (from all sectors) on the MNC.

[1] The Good Universities Guide. Universities in Australia. 2017. Good Education Group. Accessed 27/07/2017. https://www.gooduniversitiesguide.com.au/universities-tafes-colleges/Universities-in-Australia

- **Gross Regional Product (GRP) (value-added)** $95.7 – $125.6 Million is generated by the UMNC, or up to 70 % of the tertiary sector's total GRP ($179.4 Million total), and up to 1 % of the MNC total GRP ($14.9 Billion). Approximately 52 % of the UMNC contributions to GRP are derived from campus operations.
- **Income (wages and salaries)** Between $61.9 – $69.2 Million is generated by the UMNC or up to 43 % of the total tertiary sector's income ($161.1 Million) and up to 1 % of the MNC total income.
- **Exports** Local exports for the tertiary sub-sector on the MNC have been growing at 16 % p.a., reflecting the larger national shift in the export economy to include education services.
- **Students** enrolled in the UMNC drive significant proportions of the economic impact of the UMNC; up to 40.9 % of UMNC employment can be attributed to students, student impacts account for 16 % of the overall total value added, while UMNC students generate up to 14.6 % of the total UMNC income and lastly generate up to 37 % of the total UMNC output.
- **Proposed future campus expansion** A $45 Million campus expansion in the university sector will result in a construction phase employing a total of 222 people, generating a further $18.2 Million in income in the region, resulting in an output of $93.3 Million and contribute $34.6 Million to total value added on the MNC. Post-construction phase, the campus expansion will result in the employment of an additional 120 new people within the university sector. This will result in a total increase of $30.4 Million in value added to the local economy, will generate a further $22 Million in income in the region and account for a further $47.8 Million in total regional output.

The findings presented in this report also indicate that the UMNC are key drivers in the provision of higher education on the MNC. The overall increase in tertiary attendance on the MNC is growing at 4 % p.a., yet, despite the presence of five nationally and internationally recognised universities that account for over half the overall tertiary attendance in the region, the overall MNC population and the overall workforce with university qualifications remains well behind both the state and national averages.

The findings highlight that the UMNC are fulfilling their responsibilites to the regional communities by acting as a local drawcard for university education, where up to 70 % of all students enrolled in the UMNC are from the local MNC region.

The potential economic opportunities associated with the presence of the UMNC are also delivered through developing the research and development sector on the MNC, through the economic stimulus UMNC students provide and by highlighting links with the dominant health care sector. Collectively, the UMNC are in a strong position to create a leading research and development sphere on the MNC which will further stimulate the economic prosperity of the tertiary sector while also providing flow-on benefits to other industry sectors through the dissesmination of knowledge, the development and uptake of new technology and the establishment of new companies leading to the diversification of the local economy.

Finally, recommendations are proposed to address the issues arising from the findings presented in this report; to increase engagement across the region and to further enhance regional economic prosperity. The MNC is unique to regional Australia due to the presence of five university campuses with key knowledge infrastructure, which is important to drive the diversification of the economy that is required to stimulate future socio-economic prosperity in the region.

The UMNC has the potential to promote itself as a region which fosters higher education, research, development and lifelong learning to not only retain, engage and attract young adults to participate in higher education, but also to allow the rest of the population to participate in world leading university education to up-skill or retrain. This is imperative given the dynamic nature of the future workforce demands, where approximately 40 % of jobs today will no longer be present in twenty years[2].

[2] Universities Australia. Start-up smarts: Universities and the start-up economy. Universities Australia, Canberra. March 2017

1. Introduction

Higher education can be considered as a fundamental driver of economic development[3]. Understanding the complex relationship between the two has become increasingly important since the beginning of the 21st century[4]. On a national scale, universities contribute significantly towards the Australian economy, particularly within the growing service export sector. In 2015, the export revenue generated from the higher education sector increased to $19.2 billion from $17 billion in the previous year[5]. This increase highlights the shifting paradigm within Australia's export economy from resources to services such as education. Furthermore, the important and unique roles universities play by positively influencing the socio-economic character of a regional community has also become more apparent[6].

The diversification of Australia's economy is already underway and is fundamental to advancing economic development and prosperity in the future[7]. One way to diversify the economy is through investment in human capital, in which higher education plays a crucial role. Innovation can assist in driving economic growth and can be delivered via engagement in higher education[8]. Participation in higher education drives the generation and dissemination of knowledge throughout society, the expansion of skills within the workforce, and provides the knowledge, innovation and opportunistic capacity required to drive future socio-economic prosperity[9].

[3] Goodchild van Hilten L. Higher education is key to economic development (but it's not as simple as you think). 27 July 2015. Accessed 23/11/2016. https://www.elsevier.com/atlas/story/people/higher-education-is-key-to-economic-development

[4] Kruss G, McGrath S, Petersen I, Gastrow M. Higher education and economic development: The importance of building technological capabilities. International Journal of Educational Development. Vol 43, 2015, 22-31.

[5] Dodd T, 'Education revenue soars to become Australia's $20 billion export', in Australian Financial Review. Feb 3 2016. Viewed 03/04/2017. http://www.afr.com/news/policy/education/education-revenue-soars-to-become-australias-20-billion-export-20160203-gmke3k

[6] Battersby D. Clever regional unis can form the backbone of a clever country. Dec 3, 2012. Accessed 23/11/2016. https://theconversation.com/clever-regional-unis-can-form-the-backbone-of-a-clever-country-10860

[7] Cadence Economics. The graduate effect: higher education spillovers to the Australian workforce. Report for Universities Australia. May, 2016.

[8] Kruss, op. cit., 2015, 22-31

[9] ibid and Deloitte Access Economics. The importance of universities to Australia's prosperity. A report prepared for Universities Australia. October 2015.

Enhancing development is linked to higher education, which fosters an understanding of humanity's shared destiny across local and international scales, as well as across diverse environmental, socio-cultural and political landscapes too[10]. Furthermore, education provides insight as to how these are interconnected and highlights the dynamic nature of change occuring at local and global levels[11].

Lastly, while education can help provide a holisitic understanding of humanity and contemporary issues, it can also promote and enhance an awareness of an individual's socio-cultural responsibility within the community[12]. In higher education, universities play an important role in crafting the professionals that are vital to development, in particular in the health, education, agricultural and environmental sectors[13].

Australia is a highly urbanised country, where approximately 89.4 % of the population live in an urban centre[14]. For generations, many Australians held misconceptions surrounding the capability and the reputation of regional universities in comparison to their metropolitan counterparts[15]. Inadequacies across education and qualifications between rural, regional and metropolitan Australia have been well documented, highlighting an imperative to improve regional and remote Australia's level of education and lift overall qualifications[16]. Accordingly, many regional universities are now the leaders in providing high-quality educational opportunities, with successful graduate employment outcomes, and are profoundly engaged with their local communities[17].

Investment in human capital through university education has demonstrated that new university graduates have positive impacts, or a "graduate effect", on the wider economy by increasing the employment prospects and wages of those without a university qualification, which can be identified as "spill over benefits"[18]. In 2014-15, it was estimated that 120 new

[10] Tawil S. Education for 'Global citizenship' A framework for discussion. UNESCO. 07 August 2013 in UNESCO. Rethinking Education. Towards a global common good? 2015. P 66. UNESCO
[11] ibid., p. 66.
[12] ibid., p 66.
[13] Kruss, op. cit., 2015, 22-31
[14] CIA The Wold Factbook, Australia-Oceania: Australia. Viewed 03/04/2017. https://www.cia.gov/library/publications/the-world-factbook/geos/as.html
[15] Battersby D., opt. cit.
[16] ibid
[17] ibid
[18] Cadence Economics, op.cit., May, 2016.

jobs were created for people without university qualifications for every 1,000 new graduates who entered the workforce, while wages for people without a degree rose by up to $655 p.a. due to the "spill over benefits". Australia's GDP increased by approximately $124,450 for every new graduate entering the workforce, highlighting that the "graduate effect" can impact upon national growth[19]. Despite this, engaging in higher education is not only for people to invest in their own human capital, but to ensure people are educated and trained in the roles required across a multitude of industries to support economic growth and development in the future[20].

The presence of universities in regional Australia can also impact the community by helping stem the youth exodus often experienced by a regional city or town, by retaining the young adult population who might otherwise have considered moving to a metropolitan city to pursue their university education.

Historically, examining the socio-economic impact of the higher education sector has involved measuring the skills, employment status and income of graduates, and has revealed that possession of a university qualification can result in a better job with higher income over a lifetime[21]. From 2007-2015, employment growth was higher for those with university degrees (4.87 %) than those without (0.23 %)[22]. Universities play an important role in stimulating economic growth, by driving the education and training opportunities available for the local workforce.

[19] Cadence Economics, op.cit., May, 2016.
[20] Kruss, op. cit., 2015, 22-31
[21] ibid
[22] ABS Education and work Australia, Cat No. 6220.0 2007-2015. May 2016.

This report

Universities have, individually, documented the economic impact that they may exert on a region and the individual university campuses on the MNC have previously accounted for their individual impact on the local economy[23] [24] [25] [26] and as a whole across other multiple campus locations[27]. This report attempts to assess the extent to which the presence of multiple universities in one region can affect the regional economy, both directly and indirectly. Our research aims to explore the economic impact of the tertiary sector, which comprises technical, vocational and university education, and also assess the impact of the university sector alone, including the students on the Mid North Coast of New South Wales, Australia.

[23] Fuller D, Mason S, Sutton T and Wilde SJ. The impact of the Coffs Harbour Education Campus on the Coffs Coast regional economy. Centre for Enterprise Development and Research Occasional paper no 5. Southern Cross University, Coffs Harbour, NSW. 2007.
[24] Walsh L, Wilde S, Buultjens J and Mason S. The Economic Value of Southern Cross University on the Coffs Coast Region Economy: An Input-Output Analysis. Research report No 5. Regional Futures Institute, Southern Cross University, NSW. 2009.
[25] Arthur L and Sloan K. Southern Cross University - Economic Impact of the Universities in the Regional Universities Network. Regional Universities Network. 2012.
[26] Western Research Institute Ltd. Economic impact of Charles Sturt University. 2015.
[27] ibid.

2. Methods

MNC economic and population data

Data relating to the MNC economy and population was collected from the economic modelling and planning software REMPLAN v3 (Regional economic modelling and planning). This information was used to provide baseline data on the industry sectors present on the MNC, in particular the Education and Training sector which includes the tertiary sub-sector.

The Tertiary sub-sector on the MNC

The Tertiary sub-sector was used to explore the economic impact of the UMNC. REMPLAN v3 uses the Australian Bureau of Statistics (ABS) industry classifications and definitions based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) to categorise and describe sectors comprising the overall economy.

There is an inability to differentiate among the different sectors comprising the tertiary sector in REMPLAN v3 to identify the separate impacts of universities from other registered training organisations (RTOs) including TAFE. To identify the separate impacts generated by the universities on the MNC, the economic information provided for the Tertiary sector on the MNC from REMPLAN v3 was used in addition to separately modelling the economic impact of the university sector (See Estimating the Economic Impact of the UMNC).

The estimates of the economic impact of the UMNC were used to account for the Universities' contributions to the overall tertiary sub-sector on the MNC. Despite this, it is important to note that the sources used to calculate the tertiary sub-sector contributions to the MNC economy (REMPLAN v3) are different to the sources used to calculate the UMNC contributions to the MNC economy and therefore caution should be used when assessing the data. All sources are cited throughout the report.

University involvement

All Universities on the MNC were approached to be a part of this study. The participating UMNC provided information surrounding the number of students currently enrolled (YTD 2017), the courses students were enrolled in and whether students were local or non-local to the MNC. This information was collated across the participating UMNC and the individual universities were no longer identified and are hereafter referred to as the UMNC. The data provided was used to:

1. Prepare the course information tables:

Many courses have been grouped according to the most applicable course category to simplify the table. For a full detailed list of course offerings provided by the individual universities please contact the universities.

2. Calculate the number of students attending UMNC:

The number of students currently enrolled was used to provide estimates of the economic impact of the UMNC by using two different approaches:

1. Adjusting the output and using the multipliers in the Western Research Institute (WRI) Economic Impact of CSU report (see next section – estimating the economic impact of UMNC): and

2. REMPLAN v3 impact modelling.

For the University not participating in this study, information was gathered from the relevant websites for the following:

1. Courses offered on the MNC

2. Estimated number of students at each campus

Estimating the Economic Impact of the UMNC

The economic impact of the UMNC presented in this report is an estimate and was based upon adjusting the findings of the Economic Impact of CSU report (WRI, 2015)[28]. The adjusted findings were then used to quantify the economic impact of the UMNC by using two different methods:

1. Using multipliers presented in the WRI report

2. Using the REMPLAN v3 impact modelling software

The Economic Impact of CSU report[29] was chosen to form the basis of calculating the economic impact for this report as it provides the most recent published information relevant to the MNC. It was assumed that the relationship between the university and the MNC economy presented in the Northern Regions section of the WRI report may reflect and represent the relationship between the university sector as a whole on the MNC and the impact this sector has on the MNC economy. (An updated report from WRI is expected to be released late 2017 and this will enable the re-evaluation and re-assessment of the estimates presented here if requested).

Adjusting the data:

The findings presented for CSU's "Northern Region" (WRI, 2015)[30] (overall economic impact and student impacts) were adjusted to account for an increase in student numbers based on the enrolment data provided by the participating UMNC. This was achieved by:

1. Inflating the findings of the Northern Region of the Economic Impact of CSU report[31] (2013 values) by the Consumer Price Index (ABS) to the March 2017 quarter. These findings were presented in tables and included the following: total GRP, output, value added, income and employment for both the overall economic impact and student impacts.

[28] Western Research Institute Ltd. Economic impact of Charles Sturt University. 2015.
[29] ibid
[30] ibid
[31] ibid

2. The inflated table values for GRP, output, value added, income and employment were then calculated per student (based on the number of students studying internally as reported in the 2015 analysis). This was then multiplied by the total number of students enrolled (YTD 2017) across UMNC.

Impact modelling of the UMNC:

Using the adjusted findings from points 1 and 2, tables were then updated for the UMNC to accommodate for the increased number of students by using two different models:

1. Using multipliers from the output tables from the Northern Region of the Economic Impact of CSU report[32].
    a. Calculating the multipliers for GRP, output, value added, income and employment based on the tables presented in the Northern Region of the Economic Impact of CSU report[33].
    b. From there, the direct or initial impacts, the flow on impacts and total impacts were calculated by using the adjusted figures from point 2 and the multipliers from point 3 above. This is what is presented as the overall economic impact for UMNC using the WRI output and multipliers[34].
2. REMPLAN v3 impact modelling tool was also used to provide a secondary estimation of economic impacts of the UMNC (overall economic impact and student impacts):
    a. The adjusted values for the initial impacts calculated from point two above were then used as initial impacts in REMPLAN v3 impact modelling software. The Tertiary sub-sector within the Education and Training sector was the industry sector selected where these impacts were entered.

[32] ibid
[33] ibid
[34] ibid

Estimating UMNC Student expenditure on the MNC

The total number of students enrolled (YTD 2017) provided by the participating UMNC were used to calculate values for UMNC student expenditure on the MNC according to two different methods:

1. Student impacts in the Economic Impact of CSU report[35] (see points 1-4 above), and
2. Expenditure for students starting university in 2017 (national averages) from the Australian Scholarships Group (ASG)[36].

The estimates of student expenditure for both methods described above were included to provide information highlighting the range of student expenditure data currently available. Student expenditure presented here includes both local and non-local students of the UMNC and does not account for expenses related to graduation ceremonies.

Impact modelling of UMNC student expenditure on the MNC

The values from the two different methods described for calculating the value of UMNC student expenditure above were then used in two different models:

1. Using the multipliers from the output tables from the Northern Region of the Economic Impact of CSU report[37].
2. REMPLAN v3 impact modelling as specified in the deliverables of this report.

As a result, the findings of estimating the UMNC student expenditure on the MNC are presented for the following:

a. Adjusted student impacts in the Economic Impact of CSU report[38],

[35] ibid
[36] Australian Scholarships Group (ASG). Estimated costs for a student starting university in 2017, national averages. Accessed 03/04/2017. https://www.asg.com.au/doc/default-source/Media-Releases/asf-planning-for-university-2017/2017unicostssummarysheet-140217v3.pdf?sfvrsn=2
[37] Western Research Institute Ltd. Op. cit., 2015.
[38] ibid

b. Adjusted student impacts in the Economic Impact of CSU report[39] using the REMPLAN v3 impact modelling tool, and

c. ASG student expenditure estimates using the REMPLAN v3 impact modelling tool.

The results from the three estimates described above are used as a range to account for UMNC student expenditure on the MNC.

[39] Western Research Institute Ltd. Op. cit., 2015.

3. Overview of the Mid North Coast

In 2016, there were approximately 261,485 people living on the MNC[40], a 9.5 % increase from the 2011 census. The population of the MNC is projected to reach 303,880 people by 2036[41]. Five local government areas comprise the MNC including: Coffs Harbour, Bellingen, Nambucca, Kempsey and Port Macquarie-Hastings. It also includes Greater Taree (Mid Coast LGA) and the World Heritage Area of Lord Howe Island. The MNC is located half-way between Sydney and Brisbane with the Pacific Highway creating important transport linkages for the economy, in particular tourism[42].

Not everyone in Australia has an equal share of Australia's wealth, where in 2011, approximately 50% of Australian households survived on $68,000 or less per year before tax[43]. In 2016, for NSW the average incomes appear higher than the national average, with approximately 26.9% of all households earning $65,000 or less. On the MNC during the 2016 census, average incomes were lower again, with 40.8 % of households being in this income bracket[44]. The Socio Economic Indexes for Areas (SEIFA) score for the Mid North Coast is approximately 939[45], indicating household incomes are below average, and that skill levels may be lower than average.

Economic Overview[46]

- In 2016, there were a total of 95,430 people employed on the MNC, equating to 83,772 FTE jobs
- The GRP of the MNC is approximately $14.9 Billion
- The regional economy generates a total of $27.9 Billion dollars in annual output, and a total of $13.8 Billion in Value Added
- Annual total exports comprise $6.1 Billion, while total imports are $5.5 Billion

[40] ABS 2016 Census – Place of usual residence - People
[41] NSW State and Local Government Area Population Projections: 2014 Final and 2016
[42] RDAMNC Connected 2016
[43] ABS 2011 Census - Household Income – Place of Enumeration - People
[44] ABS 2016 Census – Household income – Place of Enumeration - People
[45] ABS 2011 Census of Population and Housing.
[46] ABS 2016 Census of Population and Housing. REMPLAN Dec 2017 Update.

- In terms of employment (Fig. 1), regional exports, local expenditure on goods and services, and contribution to GRP (Fig. 1), the top 6 major drivers of the MNC economy include[47]:
    - Health Care & Social Assistance
    - Electricity, Gas, Water and Waste Services,
    - Construction
    - Retail Trade
    - Manufacturing
    - Hospitality

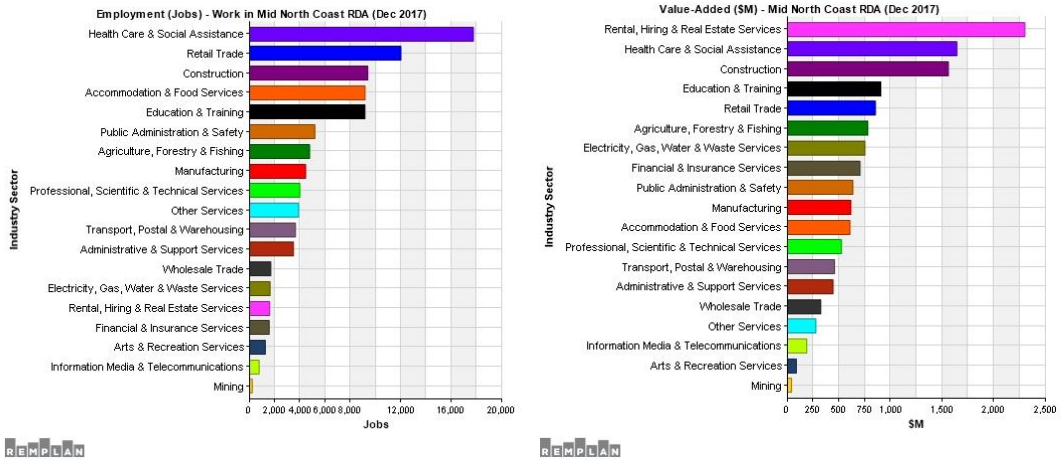

Figure 1 Employment (total) (95,430 people employed) and Value added ($13.8 Billion total) of industry sectors on the MNC. Including the Education & Training sector which comprises the tertiary and university sector on the MNC (black). Note: The value added figures reported for the real estate sector is largely attributed to the ownership of dwellings.

[47] REMPLAN v3. Economy. Mid North Coast RDA (Dec 2016). Key propulsive sectors report.

4. University Education on the Mid North Coast

There are 39 university institutions with multiple campus locations throughout Australia[48]. Currently, there are five universities present in the MNC, making the MNC eminent for university education in regional NSW as it represents approximately 12.8 % of the total university institutions in Australia. The universities present on the MNC include (Fig. 2):

- Southern Cross University in Coffs Harbour,
- Charles Sturt University in Port Macquarie
- University of Newcastle in Port Macquarie
- University of New England in Taree
- University of New South Wales in both Port Macquarie and Coffs Harbour

Not only does the MNC have an above-average representation of university institutions in NSW, the universities themselves are among some of the highest achieving universities both nationally and globally, placing the MNC in a prime position to offer national and world leading university education and research opportunities in regional Australia.

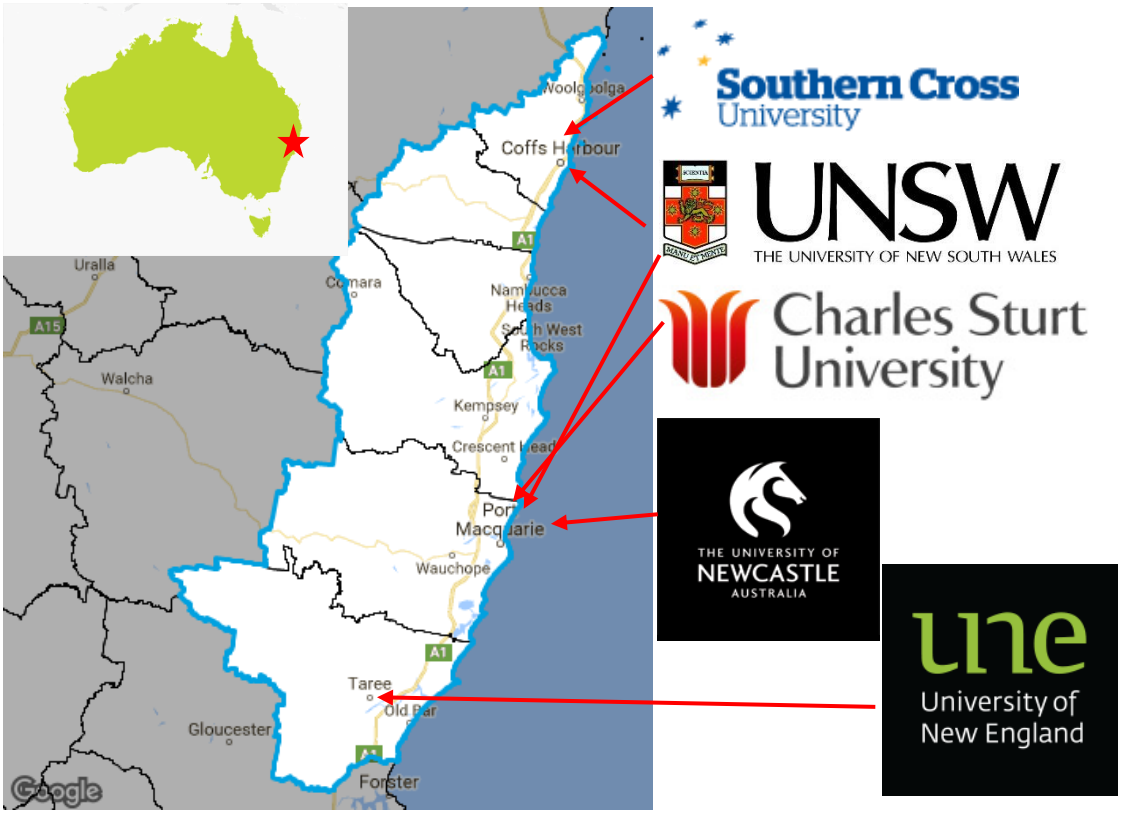

Figure 2 Map of the NSW MNC with location of the five universities present in the region, mainly located in Coffs Harbour in the North, Port Macquarie and Taree in the South of the region.

[48] The Good Universities Guide. Universities in Australia. 2017. Good Education Group. Accessed 27/07/2017. https://www.gooduniversitiesguide.com.au/universities-tafes-colleges/Universities-in-Australia

Southern Cross University (SCU)

SCU was the first University to establish on the MNC in 1993 and began operations as SCU in 1994 in Coffs Harbour. Today, SCU has several campuses located across Australia and the Coffs Harbour campus has formed partnerships with North Coast TAFE and the NSW Department of Education and Training to form the Coffs Harbour Education Campus (CHEC). The CHEC includes the Coffs Harbour Technology Park and the Innovation Hub Coffs Coast, providing an essential space for technology, innovation and IT for business development and education access. SCU Coffs Harbour is home to the National Marine Science Centre providing students with the opportunity to study marine science and management. SCU is a member of the Regional Universities Network (RUN) and was ranked in the top 500 universities in the world by the Times Higher Education World University Rankings 2015-2016[49] and in the top 150 universities less than 50 years old[50].

Charles Sturt University (CSU)

In 2016, CSU celebrated 25 years as a university with multiple regional locations throughout Australia, making it the nation's largest regional university. However, Port Macquarie is the university's first coastal campus and is the newest addition to the suite of other University institutions on the MNC with campus operations commencing in 2012. 2016 saw stage one of campus construction completed, with a further two stages to follow. The projected student intake by 2030 is 5000[51]. CSU has a graduate employment rate that is approximately 12 % above the national average and scored 5 stars (highest rating) for undergraduate student retention and employment post-graduation[52].

[49]The Good Universities Guide. Universities in Australia. 2017. Good Education Group. Accessed 27/07/2017. https://www.gooduniversitiesguide.com.au/course-provider/southern-cross-university-scu

[50] Southern Cross University. Why SCU? Accessed: 27/07/2017. http://scu.edu.au/international/index.php/8

[51] Charles Stuart University. Port Macquarie. Accessed 27/07/2017. http://www.csu.edu.au/about/locations/port-macquarie

[52] Charles Sturt University. Rankings and Ratings. Accessed: 27/07/2017. http://www.csu.edu.au/about/rankings-and-ratings

University of Newcastle (UoN)

UoN became an independent university in 1965 and like other institutions on the MNC, has multiple campus locations across Australia. UoN and TAFE NSW formed the North Coast Institute and share the campus at Port Macquarie. In 2015, UoN received Australia's first World Indigenous Nations Higher Education Consortium accreditation for its Wollotuka Institute, established in 1983. The award recognises strong outcomes within Australian Indigenous Higher Education[53]. In 2014, UoN was ranked 1st in Australia for universities under 50 years old and was also ranked within the top 250 universities in the world by the Times Higher Education World University Rankings for 2016-17[54]. UoN is also ranked in the top 10 universities in Australia for research[55].

University of New England (UNE)

UNE was established in 1938 and has approximately 18,000 online students and supports externally enrolled students through the provision of several Regional Study Centres throughout NSW including one in Taree[56], at the Southern limit of the MNC region. UNE is a member of the Regional Universities Network (RUN) and is ranked 1st in the national list of Australia's best online universities[57], and is ranked within the top 20 % of Australian universities for student experience by the Good Universities Guide[58].

[53] University of Newcastle. The Wollotuka Institute. Last Accessed: 27/07/2017. https://www.newcastle.edu.au/about-uon/our-university/indigenous-collaboration/the-wollotuka-institute
[54] University of Newcastle. UoN ranks in the top 250 global universities in THE world rankings. Last accessed: 27/07/2017. http://www.newcastle.edu.au/newsroom/featured-news/uon-ranks-in-top-250-global-universities-in-the-world-rankings
[55] University of Newcastle. Current Rankings. Last accessed: 27/07/2017. http://www.newcastle.edu.au/about-uon/our-university/achievements/current-rankings
[56] University of New England. Study Centres. Last accessed: 27/07/2017. https://www.une.edu.au/study/study-centres
[57] University of New England. Awards and ratings. Last accessed: 27/07/2017. https://www.une.edu.au/study/why-study-at-une/awards-and-ratings
[58] ibid

University of New South Wales (UNSW)

UNSW was officially established in 1949 and has been operating on the MNC since 2001 across two campuses including Coffs Harbour[59] and the Port Macquarie campus which opened in 2002[60]. These two MNC campuses host the Rural Clinical School (RCS) which has multiple campus locations throughout NSW and plays a pivotal role in providing education and training for medical practitioners in rural Australia[61]. UNSW is a founding member of the Group of Eight (GO8) which is an assembly of Australia's 8 leading research intensive universities[62]. UNSW is ranked first in NSW, 3rd in Australia and among the top 50 universities in the world according to QS World University Rankings[63].

Note: The report summarises all economic data from the above Universities to form the UMNC (Universities of the Mid North Coast) collective and no longer refers to or identifies the individual institutions.

Note: Not all Universities listed have agreed to participate or provide requested information, thus distinctions are between "UMNC" (all institutions) and the "participating UMNC".

[59] UNSW. Rural Clinical School, Coffs Harbour Campus. Last accessed: 27/07/2017. https://rcs.med.unsw.edu.au/rcs-coffs-harbour-campus
[60] UNSW. Rural Clinical School. Port Macquarie campus. Last accessed: 27/07/2017. https://rcs.med.unsw.edu.au/rcs-port-macquarie-campus
[61] UNSW. Rural Clinical School. 27/07/2017. https://rcs.med.unsw.edu.au/
[62] Group of Eight Australia. About. Last accessed: 27/07/2017. https://www.go8.edu.au/page/about
[63] UNSW. UNSW 1st in NSW, 45th in the World. Last accessed: 27/07/2017. https://newsroom.unsw.edu.au/news/general/unsw-1st-nsw-45th-world

4. a. The growing prevalence of people with a tertiary education on the Mid North Coast

Approximately 10.4 % of the total population on the MNC has a bachelor degree or higher qualification, compared to the NSW state average of 23.4 % (Fig. 3)[64]. Despite this, those holding Bachelor degrees have increased at a rate of 3.2% p.a. from 6.65% of the population in 2011, to 7.72 % in 2016 (Fig. 3). Furthermore, those with a post-graduate qualification rose from 1.08 % to 1.5 % over the same period, an increase of 7% per annum (Fig. 3)[65].

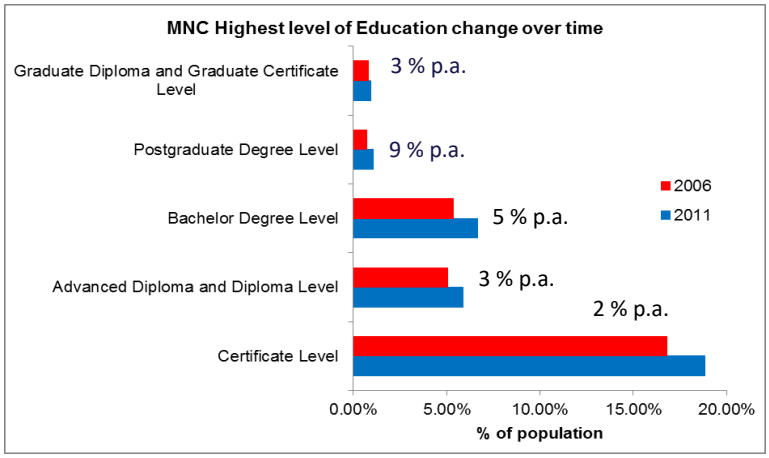

Figure 3 Changes in highest level of education on the MNC from 2006 (red)-2011 (blue). ABS 2006 and 2011 Censuses of Population and Housing.

T**ertiary education among the workforce on the MNC**

University qualifications throughout different industry sectors vary on the MNC, where people holding bachelor degree or post-graduate qualifications comprise close to a third of the workforce for two of the top four employers on the MNC (the Health Care and Social Assistance sector and the Education and Training sector)[66], highlighting that university education may be more important to overall workforce qualifications within some sectors compared to other sectors.

The industry sectors on the MNC with the greatest proportion of the workforce holding a bachelor or post-graduate qualification include the Education and Training sector at 47.9 % of the sector, followed by 36.9 % of the Professional, Scientific and Technical Services

[64] ABS 2006 and 2011 Censuses of Population and Housing
[65] ibid
[66] ABS 2016 Census of Population and Housing – place of work. Updated Dec 2017, REMPLAN v3 Workforce analysis module.

sector, the Health Care and social assistance sector at 31.4 % of the workforce, and the Public Administration and Safety sector at 24.8 % of the workforce[67].

Within the workforce (>15 years), approximately 14.7 % of workers on the MNC hold a Bachelor degree, compared to 21 % for Australia and 22.5% for NSW. Furthermore, 2.7 % of the workforce on the MNC have post-graduate qualifications, while 6.9 % and 8.2 % of Australia and NSW workers respectively hold this qualification[68].

Despite being below both state and national levels, having a tertiary qualification is increasingly more common across the MNC workforce for both local and non-local residents. There has been an overall rise in educational qualifications among the working population on the MNC, in particular those with a degree or higher from 2011-2016[69]. While all other fields of qualifications within the workforce grew, the largest qualification of people in the workforce was those with tertiary qualifications.

The proportion of the local resident population (all people who are employed and reside within the MNC) with tertiary qualifications (degree level or higher) on the MNC in 2016 was 17.5 %, an increase from 15.5 % in 2011, while those without tertiary qualifications comprised approximately 34.1 % of the workforce in 2016, compared to 38.4 %[70] in 2011.

These findings are similar to the proportion of the local workers (all people who are employed within the MNC regardless of where they live) with tertiary qualifications (degrees level or higher), at 19.5 % in 2016, an increase from 17.7 % in 2011. Those without tertiary qualifications represented approximately 36.5 % of the workforce in 2016, compared with 40.8 %[71] in 2011.

[67] ibid
[68] ABS 2016 Census of Population and Housing
[69] ABS 2011 and 2016 Census by place of work.
[70] ibid
[71] ibid

5. University course offerings on the MNC

Table 1 provides information focusing on the courses offered by the UMNC (YTD 2017).

Table 1 The UMNC Course Offerings (2017 YTD) – blue indicates one University currently offers this course. UMNC Strengths – green indicates that two Universities currently offer this course; orange indicates that three Universities currently offer this course , while white or no colouring indicates that this course is not currently offered and could highlight the potential to offer a new course on the MNC.

Administration	Journalism
Accounting	Languages
Agriculture	Law, Justice & Security
Architecture	Library / Records Management
Biomedical Science	Management
Building/construction	Marketing
Business	Mathematics
Commerce	Media & Communication
Communications	Medicine
Computer & Information Technology	Midwifery
Creative Arts	Nursing
Dentistry & Dental Studies	Paramedic
Economics	Pharmacy
Environmental Science	Physiotherapy
Education & Teacher Training	Policing
Engineering	Psychology
English Language for Overseas Students	Sciences
Finance	Social & Community Services
Health Sciences	Sport, Leisure & Recreation
Hospitality	Surveying
Humanities / Social Sciences	Tourism
Indigenous	Veterinary Science and Animal Care
Information Management	Welfare

Courses currently offered

Table 1 provides an overview of the UMNC course offerings on the MNC, with some courses only offered at one institution including: accounting, communications, environmental science, health sciences, humanities and social sciences, law, justice and security, medicine, paramedic, physiotherapy and tourism. Other courses such as business, computer and information technology, hospitality, midwifery, nursing, psychology, science, social and community services and sport, leisure and recreation are offered at multiple institutions.

Courses not currently offered

The table also highlights the gaps in courses which are currently not offered on the MNC. These courses may be viable to be introduced in the future given the variety of professions they encompass from building and construction, biomedical science, dentistry and dental studies, to engineering, mathematics, Indigenous, pharmacy, welfare and veterinary science as well as agriculture.

Achieving the full repetoire of health care courses offered

Given that health care is the largest employer in the region (Fig. 1)[72] and that the MNC has well-established expertise in the provision of local health education and training, offering biomedical science, dentistry and pharmacy courses may ensure that people interested in these professions are able to remain in the region to study and train, while also providing local businesses and industries the opportunities to establish links with the universities offering these courses and to source locally qualified people for employment post-graduation. Furthermore, some of these courses are considered to be a part of the "elite" professions[73], which also includes medicine that is already offered on the MNC.

[72] ABS 2016 Census, REMPLAN v3 December 2017 modelling, Mid North Coast RDA.
[73] Hoskins K and Shah M. Policy and practice challenges and opportunities for developing widening participation in the Global South and North, Chapter 1. In Shah M and Whiteford G. Bridges, Pathways and Transitions. Elsevier. 2017.

Achieving higher education aspirations of the local Indigenous population

The MNC has a high Indigenous population at 7.2 % comapred to the rest of NSW at 3.15%[74], making it home to approximately 6.2 % of NSW's Indigenous population[75]. Despite this, the engagement rate in higher education among the MNC's Indigenous population is half that of NSW[76], albeit the overall Indigenous enrolments account for only 1.6 % of all students across Australia[77].

Reflective of this, a longitudinal study revealed that Indigenous and non-Indigenous students hold the same career aspirations, yet differences begin to emerge among the highest achieving students, where Indigenous students are less likely to have ambitions to attend university to gain the necessary qualifications leading to their chosen career[78].

Offering university courses in Indigenous studies may provide the local Indigenous population, particularly the young adults (less than 25 years old) who comprise 54.3 % of the MNC Indigenous population[79], the opportunity to enage with and learn about their own history and culture while simultanously helping breakdown the socio-cultural isolation on campus. This may result in increasing the overall tertiary qualifications and employment opportunities of the Indigenous populations on the MNC, while enhancing their ability to become leaders within their own communites and academic experts in their chosen fields.

The university institutions on the MNC are comitted to Indigenous higher education which is reflected in awards received[80] and through the proposed delivery of an indigenous entrepreneurship hub to help develop Indigenous businesses. However, it is important that universities continue to address why Indigenous Australians are shunning university education despite holding career ambitions which require university qualifications. As such,

[74] ABS 2016 Census - Place of usual residence
[75] ABS Indigenous Status Report 2016 Census – Place of Usual Residence - People
[76] RDAMNC, Youth Retention Report, June 2013.
[77] Gore, J. Why many high-achieving Indigenous students are shunning university. June 27, 2017. The Conversation. Last accessed: 03/08/2017. https://theconversation.com/why-many-high-achieving-indigenous-students-are-shunning-university-79749
[78] Gore J et al., When higher education is possible but not desirable: widening participation and the aspirations of Australian Indigenous school students. Australian Journal of Education. 0(0) 1-20. 2017.
[79] ABS Indigenous Status Report 2016 Census – Place of Usual Residence - People
[80] University of Newcastle. The Wollotuka Institute. Last Accessed: 27/07/2017. https://www.newcastle.edu.au/about-uon/our-university/indigenous-collaboration/the-wollotuka-institute

universities have a role to encourage the fulfilment of the aspirations of young Indigenous Australians. Currently, a variety of factors have been suggested which may deter young Indigenous people from attending university to pursue their chosen career, including strong cultural and geographic factors and racial and socio-cultural isolation at university[81].

Offering courses that directly relate to and promote Indigenous culture in regions with prominent Indigenous communities will further enhance the UMNC commitment to playing a vital role in engaging the local Indigenous population in higher education. This will also contribute to closing the education gap between Indigenous and non-Indigenous Australians. Providing these courses at a local regional scale may also provide the wider population with the opportunity to become engaged in Indigenous studies.

A greater diversity of course offerings

The provision of a greater diversity of courses within the MNC may provide students the choice to remain within the region to pursue university education, while simultaneously enhancing the training and education opportunities for economically important local businesses and industries present (Fig. 1) which are not reflected in the courses currently offered, including construction and engineering. For the courses not currently offered by the UMNC, local students may then either engage in online study within the region, or potentially leave the region to undertake university education elsewhere.

Ensuring that students on the MNC have the opportunity to study a range of the “elite” courses and to become qualified professionals in these fields on the MNC is important, given the low socio-economic ranking[82] of parts of the MNC and high youth unemployment rates[83]. Furthermore, the greater course diversity the UMNC can offer, the more likely regional aspirations will be enhanced to broaden people’s visions and encourage them to pursue their aspirations[84], while having the ability to remain within their local supportive networks while doing so.

[81] Gore et al., op. cit.
[82] ABS 2016 Census of Population and Housing.
[83] Brotherhood of St Laurence – Australia’s Youth Unemployment Hotspots Snapshot, March 2016.
[84] Cardak et al., Regional Student Participation and Migration. LaTrobe University. February 2017

Currently, there are gaps present among the courses offered by the UMNC leading to careers in STEMM (Science, Technology, Engineering, Maths and Medicine). Offering courses including mathematics and engineering may ensure that local people have the opportunity to engage in the full-spectrum of STEMM courses on the MNC, while local businesses and industries dependent upon STEMM will also benefit through engagement with the universities and graduates.

Additionally, offering the remaining STEMM courses may also help address the current disparity between genders attending tertiary institutions on the MNC (see section 6), by engaging the under-represented female population in higher education courses in careers that have been traditionally popular with males.

6. University students on the MNC

Overall University attendance on the MNC is increasing

Since 2006, the number of people on the MNC attending a University or another Tertiary institution has risen from 1.38 % to 1.85 % of the total population[85] (Fig. 4), growing at a rate of 4.01 % per annum.

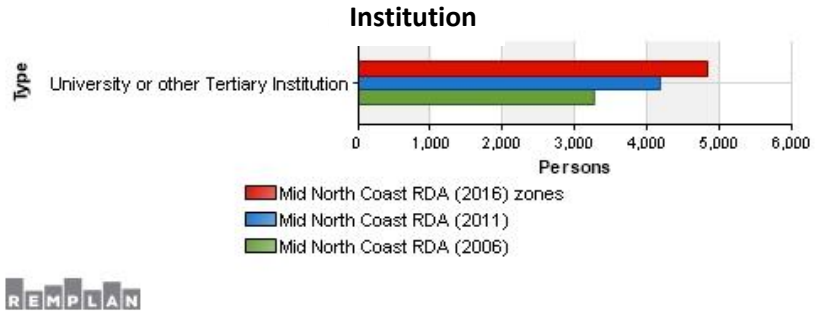

Figure 4 Changes in the attendance of a University or other Tertiary education institution on the MNC from 2006 (green), 2011 (blue) and 2016 (red). ABS 2016 Census. Institution Attending 2006, 2011– Place of Usual Residence - People

Of the total number of people living on the MNC who are currently attending a university or a tertiary institution (4832 people), 3311 or 68.5 % identified as females, while 1521 or 31.5% identified as males[86]. Approximately 57 % of the total number of people on the MNC attending a university or tertiary institution are currently enrolled at one of the UMNC campuses (Fig. 5), while the remaining 43 % attend a tertiary institution in the region such as an RTO or TAFE, or are enrolled as distance education students of external university institutions to the MNC.

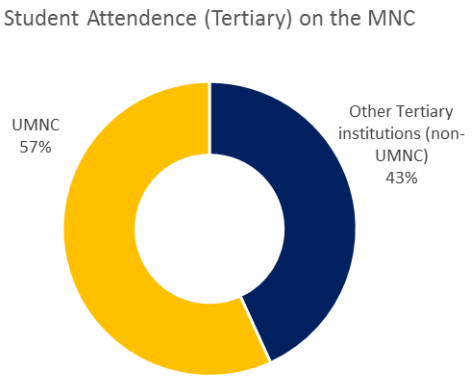

Figure 5 The total proportion of students attending a Tertiary institution on the MNC (4832 people) based on UMNC attendance (yellow) or another tertiary institution attendance (may include TAFE, universities external to the MNC or another RTO provider) (navy).

[85] ABS 2016 Census. Institution Attending 2006, 2011– Place of Usual Residence - People
[86] ibid

UMNC – a local drawcard to engage in University education

There are currently approximately 2745 students enrolled in one of the UMNC campuses (2017 YTD). According to information obtained from the participating UMNC, an average of 67 % of students currently enrolled are from the local MNC area (Fig. 6).

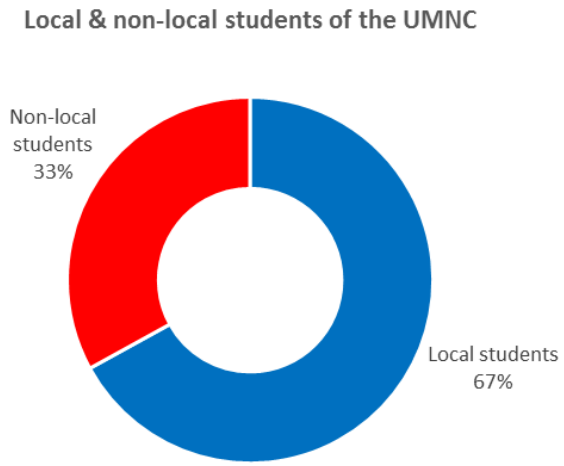

Figure 6 The proportion of students from the UMNC (~2745 students total) that are local students (blue) or non-local (from outside the MNC region) (red).

Youth retention and participation in higher education

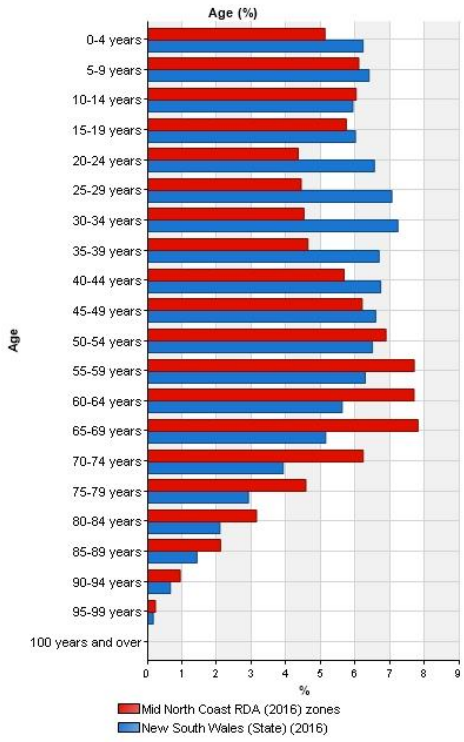

Figure 7 The 2016 demographic profile of the MNC (red) and NSW (blue). ABS 2016 Census – Place of Usual Residence - People

The retention of young people through to approximately 39 years on the MNC is important as there is a gap in the demographic profile of the MNC based on age when compared to that of NSW (Fig. 7)[87]. Large numbers of young people leave the region after high school seeking career opportunities. However, further education and training opportunities provided by university institutions may stem the youth exodus from the region and provide further education and training opportunities for adults to remain in the region if they wish to retrain, up-skill or gain a new qualification to pursue a different career.

[87] ABS 2016 Census – Place of Usual Residence - People

Youth unemployment is high on the MNC and in 2016 the MNC was ranked number 6 in the top 20 regions with the highest youth unemployment rate in Australia[88]. By October 2016, the region's youth unemployment rate increased from 19.5% to 20.3% from March 2016, and was 76% higher than the NSW state average of 11.5%[89]. To help address youth unemployment on the MNC, it is paramount to ensure the working relationships between local education and training providers, including the UMNC and employers, are established and maintained within the region[90]. Furthermore, despite improving school completion rates over time (Year 12)[91] (Fig. 8), the region's youth university participation rate (5.7 %) is well behind the New South Wales rate (20 %) and other regional towns with a university presence (Fig. 9)[92]. The gaps are even more pronounced when examining participation rates among Aboriginal and Torres Strait Islander youth[93]. It is important to note that these figures may have changed with the result of the 2016 census data when made available.

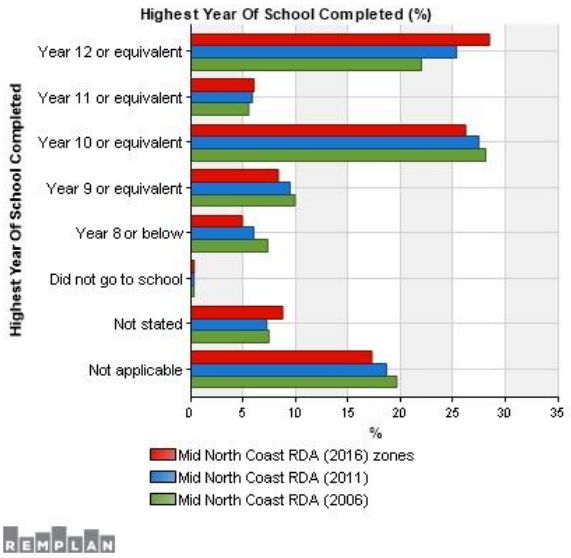

Figure 8 Highest year of school completed as a proportion of the total population on the MNC from 2006 (green), 2011 (blue) and 2016 (red). ABS 2016 Census – Place of Usual Residence – People.

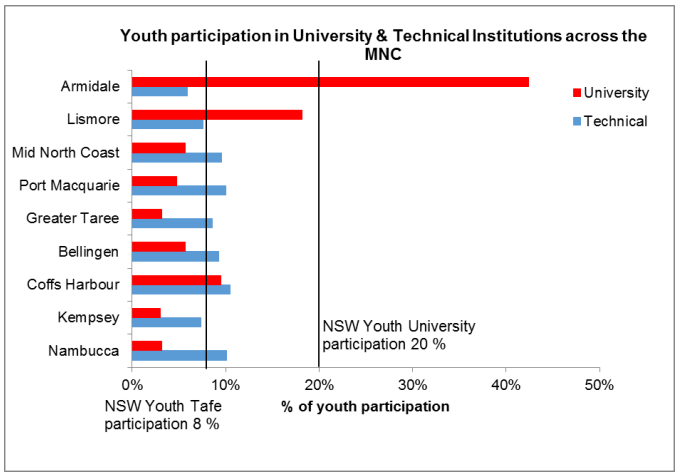

Figure 9 The proportion of youth engaged in university or technical institutions on the MNC relative to other regional towns and NSW. ABS 2011 Census of Population and Housing.

[88] Brotherhood of St Laurence – Australia's Youth Unemployment Hotspots Snapshot, March 2016.
[89] Youth unemployment: Department of Employment, ABS Labour Force Survey, SA4 – Time Series, October 2016.
[90] UNESCO. Rethinking Education. Towards a global common good? 2015. P 66. UNESCO
[91] ABS 2016 Census – Place of Usual Residence - People
[92] ABS 2011 Census of Population and housing
[93] RDAMNC, Youth Retention Report, June 2013.

The findings presented here show that close to 70 % of the universities on the MNC are currently attended by local students (Fig. 6). The provision of more, or an expansion of existing, higher education and training opportunities available to regional towns and within close proximity to vulnerable youth and disadvantaged communities, will ensure that people have the opportunity to stay in the region to complete their studies in close proximity to family and friends who can offer both financial and moral support. There is a close correlation between the distance students must travel to access higher education and their participation in higher education. This is particularly true of Indigenous communities who often prefer to stay "on country"[94].

Indigenous participation

Approximately 7.2 % of the population on the MNC identified as being Aboriginal, Torres Strait Islander or both during the 2016 census, compared to the NSW state average of 3.15 %[95]. Approximately 54.3% of the Indigenous population on the MNC were less than 25 years old in 2016, 18 % of which were aged between 15-24 years[96]. While the MNC is home to approximately 7.3 % of NSW's Indigenous population[97], approximately 2.8 % of the MNC's Indigenous youth population are engaged in university study, almost half the rate of NSW at 5.3 % (Fig. 10).

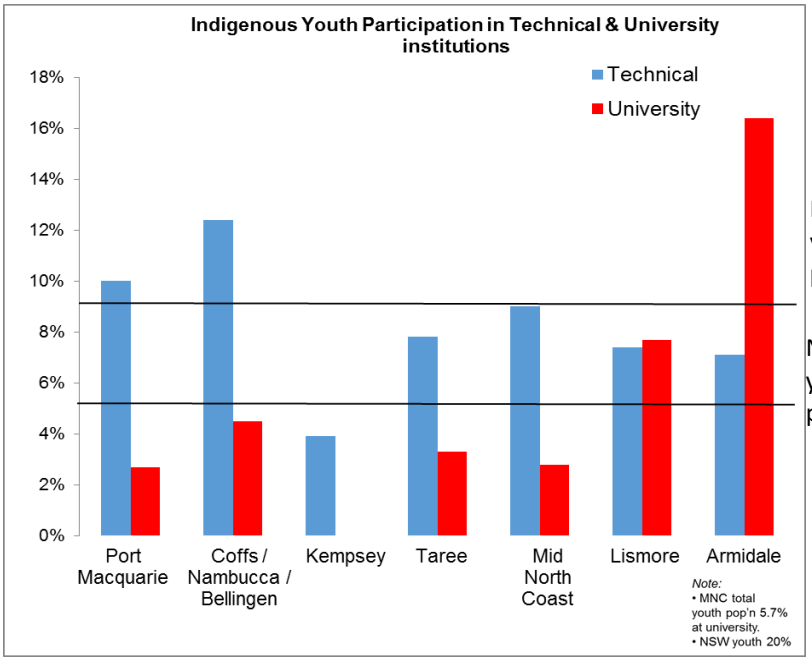

Figure 10: University and technical institution participation of Indigenous youth on the MNC and relative to other regional towns and NSW. ABS 2011 Census of Population and Housing.

[94] ABS 2011 Census Place of usual residence and RDAMNC, Youth Retention Report, June 2013.
[95] ABS 2016 Census - Place of usual residence
[96] ABS Indigenous Status Report 2011 Census – Place of Usual Residence - People
[97] ABS Indigenous Status Report 2016 Census – Place of Usual Residence - People

There are significant opportunities to increase the aspiration, university participation, educational and employment outcomes for the region's Indigenous population, in particular the younger population[98]. Regional areas with a strong history of universities present in towns, including Armidale, had an Indigenous youth participation rate of 16.4 % in 2011 (Fig. 10) and an overall youth participation rate of ~40 % (Fig. 9), highlighting that Universities may play an important role in engaging both the younger and Indigenous population in higher education in regional areas. Furthermore, the release of the 2016 census results may provide additional insights to changes on the MNC since 2011.

Graduate retention

Young people's intentions to attend universities are often influenced by their locations – 63% of metropolitan young people intend to enrol in higher education, while 39 % in regional areas and 32 % in remote areas have the same intention[99]. The proportion of graduates with a bachelor degree from the MNC and North Coast region, as well as NSW regional areas who were employed in the same region of study (27-30 %), was not only higher than their Sydney or Brisbane equivalent cohorts, but also higher than graduates from other regional areas (Fig. 11).

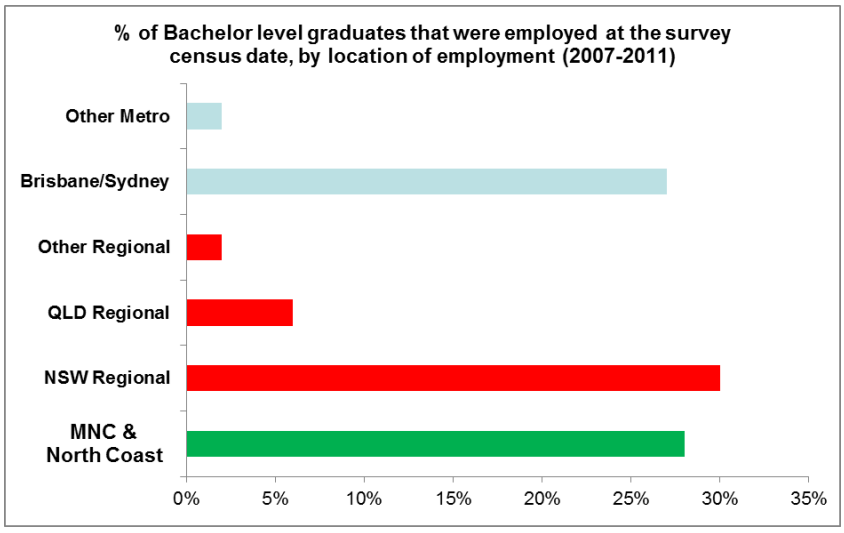

Figure 11 Location of graduates employed (%) in regional and metropolitan Australia. Regional Universities Network (RUN) 2012, Southern Cross University: Economic Impact of the Universities in the Regional Universities Network.

[98] RDAMNC, Youth Retention Report, June 2013.
[99] Australian Council for Educational Research (ACER). Australian Regional Higher Education: Student Characteristics and Experiences 2010, in RDAMNC, Youth Retention Report, June 2013.

Having the option to study locally on the MNC may have flow-on impacts post-university, providing people with a greater opportunity to remain living and working in the region post-graduation. This is important because investment in human capital through university education has demonstrated that new university graduates have positive impacts, or a "graduate effect", on the wider economy by increasing the employment prospects and wages of those without a university qualification, which can be identified as "spill over benefits"[100]. In 2014-15, it was estimated that 120 new jobs were created for people without university qualifications for every 1 000 new graduates who entered the workforce, while wages for people without a degree rose by up to $655 p.a. due to the "spill over benefits"[101]. Australia's GDP increased by approximately $124,450 for every new graduate entering the workforce, highlighting that "graduate effects" can impact upon national growth[102].

[100] Cadence Economics, op.cit., May, 2016.
[101] Cadence Economics, op.cit., May, 2016.
[102] Cadence Economics, op.cit., May, 2016.

7. Economic Impact of the tertiary sub-sector on the Mid North Coast

The Education and Training sector on the MNC comprises the tertiary sub-sector (undergrad and post-grad), which includes the technical and vocational education sub-sector as well as the higher education sub-sector (ANZSIC Categories). On the MNC, the education and training sector currently employs approximately 9.4 % of the total working population, making it the fourth largest employer in the region[103] (Fig. 1). Table 2 presents a summary of the economic snapshot of the tertiary sub-sector on the MNC.

Table 2 Economic overview of the Tertiary sub-sector on the MNC (Within the Education & training sector). [104]

	Employment	Output	Value Added	Exports	Imports	Local Sales
Tertiary sector (MNC)	1194 total (1030FTE)	$248M	$179.4M	$50.1M	$26.1M	$21.6M
Tertiary sector as % of total MNC industry sectors	1.3 %	0.9 %	1.3 %	0.8 %	0.5 %	0.2 %
Growth p.a.(1999/00-2015/16)	2.8 %	3.4 %	2.3 %	16 %	0.2 %	2.6 %
MNC tertiary sector as % of total regional NSW tertiary sector	5.8 %	5 %	5 %	1 %	5 %	10 %

Employment Overall, the tertiary sub-sector on the MNC employs a total of 1 194 people, equating to 1 030 Full-Time Equivalent (FTE) jobs, and accounts for 1.3% of the total employment across all industry sectors on the MNC[105] (Table 2). At a larger scale, 5.8 % of all employment and 5% of FTE jobs in the tertiary sector across regional NSW can be attributed to the MNC[106] (Table 2). Nationally, the tertiary sector on the MNC represents 0.5% of all tertiary employment across Australia. Since 1999/00 the employment by the tertiary sector on the MNC has grown by 2.8 % p.a. year to 2015/16[107] (Table 2).

[103] ABS 2016 Census. REMPLAN v3. Employment Report. Mid North Coast RDA.
[104] Refer to in-text references
[105] ABS 2016 Census of Population and Housing. REMPLAN v3. Employment Report. Mid North Coast RDA.
[106] National Institute of Economic and Industry Research (NIEIR) 2016. Compiled and presented in economy.id by .id , the population experts. Data is based on 2015-16 constant prices for all years. NIEIR data are inflation adjusted each year to allow direct comparison, and new data releases normally adjust previous years' figures to a new base year.
[107] ibid

Output The tertiary sector on the MNC generates a total output of $248 Million dollars annually, contributing to approximately 0.9% of the local output[108] (Table 2). Since 1999/00 the output generated by the tertiary sector on the MNC has grown by 3.4 % p.a. in the year to 2015/16[109] (Table 2).

Value added The Tertiary sector on the MNC generates $179.4 Million dollars of value-added contributing 1.3 % to the Gross Regional Product (GRP) of the MNC[110] (Table 2). Since 1999/00, the value added by the tertiary sector on the MNC has increased by 2.3 % p.a. in the year to 2015/16[111] (Table 2).

Exports & Imports Total exports account for $50.1 Million dollars (0.8 % total regional exports), while total imports equate to $ 26.1 Million dollars (0.5 % of total regional imports). In the year to 2015/16, total exports have grown by 16.0 % p.a., while total imports have grown by 0.18 % since 1999/00[112] (Table 2).

Local Sales The tertiary sector on the MNC accounts for $21.6 Million dollars of local sales[113], contributing to 0.2% of the total local sales on the MNC[114] and has risen by 2.6 % p.a. from 1999/00 to 2015/16[115] (Table 2).

Regional NSW Relative to the overall Regional NSW tertiary sub-sector, the MNC tertiary sub-sector contributes to approximately 10% of all local sales, generating 5.8 % of the total employment, 5 % of output, value added, and total imports while also contributing to 1 % of the regional NSW tertiary sector exports[116] (Table 2).

[108] ABS 2016 Census. REMPLAN v3. Economy. Output Report. Mid North Coast RDA.
[109] National Institute of Economic and Industry Research (NIEIR) 2016. Compiled and presented in economy.id by .id , the population experts. Op. cit.,
[110] ABS 2016 Census. REMPLAN v3. Economy. Value Added Report. Mid North Coast RDA.
[111] National Institute of Economic and Industry Research (NIEIR) 2016. Compiled and presented in economy.id by .id , the population experts. Op. cit.,
[112] National Institute of Economic and Industry Research (NIEIR) 2016. Compiled and presented in economy.id by .id , the population experts. Op. cit.,
[113] ABS 2016 Census. REMPLAN v3. Economy. Local Sales Report. Mid North Coast RDA.
[114] ABS 2016 Census. REMPLAN v3. Economy. Exports & Imports Report. Mid North Coast RDA.
[115] National Institute of Economic and Industry Research (NIEIR) 2016. Compiled and presented in economy.id by .id , the population experts. Op. cit.,
[116] ibid

8. Overall Economic Impact of UMNC on the MNC

Two estimations are presented for the overall economic impact of the UMNC on the MNC based upon participating UMNC student enrolment count data (YTD 2017) and the following input-output impact modelling:

1. Using the adjusted WRI data and multipliers[117] (Table 3)

2. Using the initial output calculated from Table 3 and REMPLAN v3 impact modelling (Table 4)

Furthermore, the economic contributions to value added are also presented in Table 5 for the UMNC using the adjusted WRI values and multipliers.

[117] Western Research Institute Ltd. Op. cit., 2015.

Table 3 Overall UMNC Economic impact (Based on adjusting data using the output and multipliers presented in the Economic impact of CSU report (WRI, 2015) and the participating UMNC student enrolment count data (YTD 2017)) *data presented may not add up due to rounding.

UMNC Overall Economic Impact	Value Added $M	Output $M	Employment FTE	Income $M
Initial	49.8	79.2	479	34.4
Flow On	75.8	122.2	383	27.5
Total	125.6	201.4	862	61.9
Multiplier	2.5	2.5	1.8	1.8
MNC Tertiary sub-sector (Dec 2017 REMPLAN v3)	179.4	248.4	1030	161
UMNC as % of MNC Tertiary sub sector	70 %	81 %	84 %	38 %

Table 4 Overall UMNC economic impact on the MNC. (REMPLAN Modelling Impact analysis on the MNC in the tertiary sub-sector within the Education and Training sector. The output of $79.2M for the UMNC was used in the impact analysis and was based on the calculations presented in Table 3). *data presented may not add up due to rounding.

UMNC Overall Economic Impact	Value added $M	Output $M	Employment FTE	Income $M
Initial	57.8	79.2	378	52.0
Flow on	37.9	70.5	238	17.2
Total	95.7	149.7	616	69.2
Multiplier	1.6	1.8	1.6	1.3
MNC Tertiary sub-sector (Dec 2017, REMPLAN v 3)	179.4	248.4	1030	161
UMNC as % of MNC tertiary sector	53 %	60 %	60 %	43 %

Summary of Tables 3 – 4 Overall, the increase in direct (initial) and indirect (flow-on) output and the corresponding boost to jobs in the economy are expected to result in an increase in the wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy.

Impact on Output From a direct increase in output of $79.2 Million it is estimated that the demand for intermediate goods and services would increase and these industrial effects include multiple rounds of flow-on effects, as servicing sectors increase their own output and demand for local goods and services in response to the direct change to the economy. Total output, including all direct, industrial and consumption effects is estimated to increase by up to $149.7 - $201.4 Million. This represents a Type 2 Output multiplier of 2.5 (Table 3) or 1.8 (Table 4).

Impact on Employment From a direct increase in output of $79.2 Million the corresponding creation of direct jobs is estimated at 378-479 jobs (Table 3-4). Total employment, including all direct, industrial and consumption effects is estimated to increase by up to 616-862 jobs (Table 3-4). This represents a Type 2 Employment multiplier of 1.8 (Table 3) or 1.6 (Table 4).

Impact on Income From a direct increase in output of $79.2 Million it is estimated that direct wages and salaries would increase by $34.4 - $52.0 Million (Table 3-4). Total wages and salaries, including all direct, industrial and consumption effects is estimated to increase by up to $61.9 -$ 69.2 Million. This represents a Type 2 Wages and Salaries multiplier of 1.8 (Table 3) or 1.3 (Table 4).

Impact on Value Added From a direct increase in output of $79.2 Million the corresponding increase in direct value-added is estimated at $49.8 - $57.8 Million (Table 3-4). Total value-added, including all direct, industrial and consumption effects is estimated to increase by up to $95.7 – 125.6 Million (Table 3-4). This represents a Type 2 Value-added multiplier of 2.5 (Table 3) 1.6 (Table 4). The breakdown of value added (Table 3) is explored in Table 5 and Figure 12.

Distribution of value added across UMNC

Table 5 and Figure 12 present the overall breakdown of value added across the UMNC (Table 3), including the total value added of $125.6 Million across the following:

Table 5 UMNC value added across different operations and impacts. (Based on adjusting data using the output and multipliers presented in WRI CSU report (2015)) *data presented may not add up due to rounding.

Value Added $M	Campus Operations $M	Student Impacts $M	Capital Impacts $M	Additional Impacts $M	Overall $M
Initial	34.3	10.3	1.7	5.1	49.8
Flow on	30.8	10.3	1.7	30.8	75.8
Total (GRP) $M	65.1	20.6	3.4	35.9	125.6

Summary of table 5

- **Campus operations:** $65.1 Million or 52 % of total UMNC value added
- **Student Impacts:** $20.6 Million or 16 % of total UMNC value added
- **Capital Impacts:** $3.4 Million or 3 % of total UMNC value added
- **Additional Impacts:** $35.9 Million or 29 % of total UMNC value added

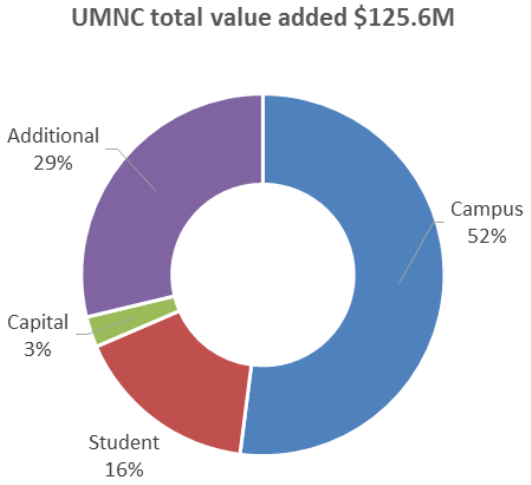

Figure 12 Breakdown of UMNC total value added of $125.6M across campus operations, student impacts, capital impacts and additional impacts.

Overall Economic Impact of UMNC (estimation range) (Tables 3 - 5)

There is a range of estimates for the overall total economic impact of the UMNC using adjusted data for both adjusted WRI data and multipliers (Table 3) and REMPLAN v3 (Table 4) impact modelling. It also includes the breakdown of value added (Table 5):

- **UMNC** accounts for approximately $95.7-125.6 Million or up to 70 % of the GRP contributed by the tertiary sector ($179.4 Million) on the MNC, and up to 1 % of gross regional product ($14.9 Billion total).
- **Value added** UMNC campus operations comprise up to 52 % of total value added ($95.7-$125.6 Million), followed by students at 16 %.
- **Output:** $149.7 - $201.4 Million – The UMNC represents 60 - 81 % of the total output of the tertiary sector on the MNC ($248.4 Million). Overall, the UMNC comprises up to 0.8 % of the total output on the MNC.
- **Employment:** 616 - 862 FTE - The UMNC accounts for 60 - 84 % of total employment FTE (1030) within the tertiary sector on the MNC. Up to 1.2 % of total FTE employment on the MNC is attributed to the UMNC.
- **Income:** $61.9 – $69.2 Million - These estimates represent between 38 - 43 % of the total tertiary sector's income on the MNC ($161 Million). Up to 1 % of total income on the MNC is generated by the UMNC.

The data presented here may be over-estimation, in particular where the results relating to FTE employment using the WRI output and multipliers account for 99.8 % of the tertiary sub-sectors employment on the MNC. This may be an over-estimation given the other RTOs and TAFE present on the MNC would employ more than the remaining 0.02% of people within the tertiary sub-sector. It was assumed all campuses are operating in a similar way and on a similar scale and this is not likely to be the case. The data also excludes any graduation ceremonies.

8. a. Student Expenditure and Impacts on the MNC Economy

Student expenditure in this report includes expenditure by both non-local and local students. It has not accounted for graduation ceremonies.

Estimations are presented for the following:

1. Adjusted student expenditure estimates from the Northern Region[118] and UMNC student enrolment count data (YTD 2017) using the WRI data and multipliers[119](presented in table 6).
2. Adjusted student expenditure estimates from the Northern Region [120] and UMNC student enrolment count data (YTD 2017) using REMPLAN v3 impact modelling on the MNC region (presented in table 7).
3. ASG[121] student expenditure estimates and UMNC student enrolment count data (YTD 2017) using REMPLAN v3 impact modelling on the MNC region (presented in table 8, Fig. 13).

[118] Western Research Institute Ltd. Op. cit., 2015.
[119] ibid
[120] ibid
[121] Australian Scholarships Group (ASG). Estimated costs for a student starting university in 2017, national averages. Accessed 03/04/2017. https://www.asg.com.au/doc/default-source/Media-Releases/asf-planning-for-university-2017/2017unicostssummarysheet-140217v3.pdf?sfvrsn=2

Breakdown of student expenditure

The estimation of UMNC student expenditure is presented in the following tables (Tables 6-8). Approximately 23 % of total UMNC student expenditure (local and non-local), excluding tuition fees, is spent in the hospitality sector on the MNC (Fig. 13), followed by the arts and recreation sector at 20 % of total expenditure, the real estate sector received 19 % of total expenditure, while the retail sector is the next largest receiver of student expenditure at 18%[122].

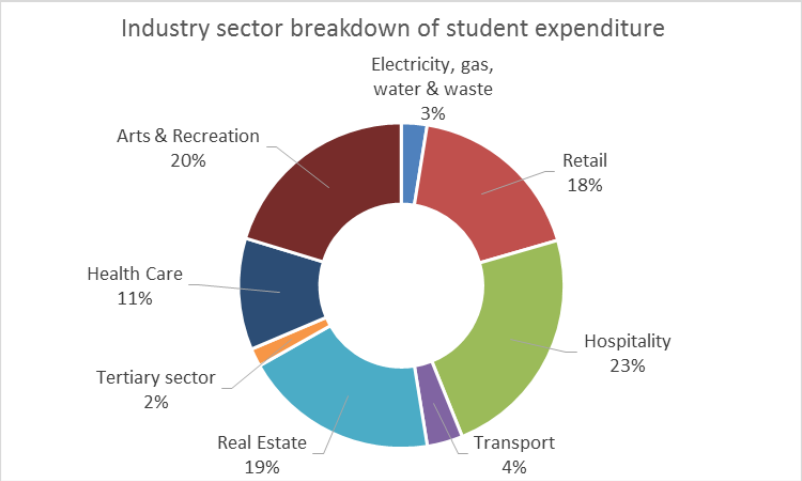

Figure 13 Breakdown of UMNC student expenditure (local and non-local students and does not include tuition fees).

Table 6 UMNC Student expenditure impacts – based on WRI student expenditure estimates and UMNC student enrolment count data (YTD 2017) using the WRI output and multipliers. *data presented may not add up due to rounding.

UMNC Student impacts	Value Added $M	Output $M	Employment FTE	Income $M
Initial	10.3	16.9	80	10.3
Flow On	10.3	25.3	80	-
Total	20.6	42.3	160	10.3
Multiplier	2.0	2.5	2.0	-
UMNC total (Table 3)	125.6	201.4	862	61.9
MNC Tertiary sector (Dec 2017 REMPLAN v3)	179.4	248.8	1030	161
UMNC Student impacts as % of MNC Tertiary sub-sector	11.5 %	17 %	15.5 %	6.4 %

[122] Figures based on UMNC student enrolments (YTD 2017) and Australian Scholarships Group (ASG). Calculate education cost. https://www.asg.com.au/calculator/education-calculator. 2017. Last accessed 01/08/2017.

Table 7 UMNC Student impacts – based on WRI initial OUTPUT OF $16.9 Million (Table 6) and UMNC student enrolment count data (YTD 2017) using REMPLAN v3 impact modelling on the MNC. *data presented may not add up due to rounding

UMNC Student impacts	Value added $M	Output $M	Employment FTE	Income $M
Initial	9.1	16.9	87	4.7
Flow on	6.5	13	42	3.1
Total	15.6	30	129	7.8
Multiplier	1.7	1.8	1.5	1.7
MNC Tertiary sub-sector (Dec 2017 REMPLAN v3)	179.4	248.8	1030	161
UMNC Student impacts as % of MNC Tertiary sub-sector	9.5%	12.1%	12.5%	4.8%

Table 8 UMNC Student impacts – based on ASG data and UMNC student enrolment counts data (YTD 2017) with an output of $47 Million[123] using REMPLAN v3 impact modelling on the MNC. *data presented may not add up due to rounding

UMNC Student impacts	Value added $M	Output $M	Employment FTE	Income $M
Initial	25.3	47.0	240	13.0
Flow on	18.0	36.5	114	8.5
Total	43.3	83.6	354	21.6
Multiplier	1.7	1.8	1.5	1.7
MNC Tertiary sub-sector (Dec 2017 REMPLAN v3)	179.4	248.8	1030	161
UMNC Student impacts as % of MNC Tertiary sub-sector	26.3 %	37.0 %	40.9 %	14.6 %

Summary of Tables 6 – 8 Taken together, the increases in direct and indirect output would typically correspond to the creation of jobs in the economy. Corresponding to this change in employment would be an increase in the total of wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy.

[123] Figures based on UMNC student enrolments (YTD 2017) and Australian Scholarships Group (ASG). Estimated costs for a student starting university in 2017, national averages. Last accessed 03/04/2017. https://www.asg.com.au/doc/default-source/Media-Releases/asf-planning-for-university-2017/2017unicostssummarysheet-140217v3.pdf?sfvrsn=2 & Australian Scholarships Group (ASG). Calculate education cost. https://www.asg.com.au/calculator/education-calculator. 2017. Last accessed 01/08/2017.

Impact on Output From a direct increase in output of $16.9 Million (Table 6-7) or $47 Million (Table 8), it is estimated that the demand for intermediate goods and services would rise and these industrial effects include multiple rounds of flow-on effects, as servicing sectors increase their own output and demand for local goods and services in response to the direct change to the economy. Total output, including all direct, industrial and consumption effects is estimated to increase by up to $30.0 - $42.3 Million (Table 6-7), or $83.6 Million (Table 8). This represents a Type 2 Output multiplier of 2.5 (Table 6), 1.8 (Table 7-8), or 1.8 (Table 8).

Impact on employment From a direct increase in output of $16.9 Million (Table 6-7) or $47 Million (Table 8), the corresponding creation of direct jobs is estimated between 80-87 jobs (Table 6-7) or 240 jobs (Table 8). Total employment, including all direct, industrial and consumption effects is estimated to increase by up to 129-160 jobs (Table 6-7) or 354 (Table 8). This represents a Type 2 Employment multiplier of 2.0 (Table 6), 1.5 (Table 7-8).

Impact on Income From a direct increase in output of $16.9 Million (Table 6-7) or $47 Million (Table 8), it is estimated that direct wages and salaries would increase by $4.7 - $10.3 Million (Table 6-7) or $13 Million (Table 8). Total wages and salaries, including all direct, industrial and consumption effects is estimated to increase by up to $7.8 – 10.3 Million (Table 6-7) or $21.6 Million (Table 8). This represents a Type 2 Wages and Salaries multiplier of 1.7 (Table 7-8).

Impact on Value-Added From a direct increase in output of $16.9 Million (Table 6-7) or $47 Million (Table 8), the corresponding increase in direct value-added is estimated at $9.1-10.3 Million (Table 6-7) or $25.3 Million (Table 8). From this direct expansion in the economy, flow-on industrial effects in terms of local purchases of goods and services are anticipated, and it is estimated that these indirect impacts would result in a further increases to value-added. Total value-added, including all direct, industrial and consumption effects is estimated to increase by up to $15.6 - $20.6 Million (Table 6-7) or $43.3 Million (Table 8). This represents a Type 2 Value-added multiplier of 2.0 (Table 6) or 1.7 (Table 7-8).

Overall Economic Impact of UMNC student expenditure on the MNC (estimation range) (Tables 6 – 8)

There is a range of estimates for the overall total economic impact of UMNC students using adjusted WRI estimates and multipliers (Table 6) representing the middle range, REMPLAN v3 modelling (Table 7) representing the lower range and ASG estimates using REMPLAN v3 modelling (Table 8) representing the upper range:

Value added $15.6 – $43.3 Million – Overall, the UMNC students contribute up to 26.3 % of the total value added for MNC tertiary education sub-sector (upper range).

Output: $30 - $83.6 Million – UMNC students contribute up to 37% of total output for the MNC tertiary education sub-sector (upper range).

Employment FTE: 129 – 354 - Students of the UMNC generate up to 40.9 % of FTE employment for the MNC tertiary education sub-sector (upper range).

Income: $7.8 – $21.6 Million - UMNC students generate up to 14.6 % of income from the MNC tertiary sub-sector (upper range).

8. b. Summary – Estimation of overall economic impact of UMNC including student expenditure

- Overall, the education and training sector on the MNC is the fourth largest employer in the region at 9.6 % of all employment and of this, the tertiary sub-sector accounts for 1.3 % of all employment.
- Local exports for the tertiary sub-sector on the MNC have been growing at 16 % p.a., reflecting the larger national shift in the export economy to education services.
- Within the tertiary sector, our analyses reveal that up to 1.2 % of FTE employment is derived from the UMNC, making it a significant employer, and up to 34.4 % of this employment within the UMNC can be attributed to students.
- UMNC accounts for approximately $95.7-125.6 Million or 70 % of the GRP contributed by the tertiary sector ($179.4 Million) on the MNC, and up to 1 % of the region's gross regional product ($14.9 Billion total). Approximately 52 % of the UMNC contributions to GRP are derived from campus operations, followed by 16 % from students.
- The UMNC represents 60 - 81 % of the total output generated by the tertiary sector on the MNC ($248.4 Million), of which students generate up to 33.7 %. Overall, the UMNC comprises up to 0.8 % of the total output on the MNC.
- Between 38 - 43 % of the total tertiary sector's income on the MNC ($161 Million) is derived from the UMNC, of which UMNC students generate up to 14.6 % of the total income. Up to 1 % of total income on the MNC is generated by the UMNC.

8. c. Proposed future economic impacts of the UMNC

The expansion of the UMNC campuses will also result in further employment generated by the UMNC. It has been proposed that one of the UMNC campus expansions will cost approximately $45 Million in construction and will result in the employment of 120 new staff at the UMNC. Below, an economic impact assessment of building the new expansion of the UMNC and the resulting 120 new jobs the expansion will generate is provided.

Construction arising from expansion of UMNC

Table 9 Impact summary of proposed UMNC campus expansion on the MNC resulting in ~$45 Million construction. Impact modelling was performed using REMPLAN v3 on the MNC. *data presented may not add up due to rounding

Construction impacts ~$ 45 Million	Value added $M	Output $M	Employment FTE	Income $M
Initial	13.8	45.0	83	7.2
Flow on	20.8	49.3	139	11
Total	34.6	94.3	222	18.2
Multiplier	2.5	2.1	2.7	2.5

Summary Table 9 The increases in direct and indirect output would typically correspond to the creation of jobs in the economy. Corresponding to this change in employment would be an increase in the total of wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy.

Impact on Output From a direct increase in output of $45.0 Million (Table 9), industrial effects include multiple rounds of flow-on effects, as servicing sectors increase their own output and demand for local goods and services in response to the direct change to the economy. Total output, including all direct, industrial and consumption effects is estimated to increase by up to $94.325 Million. This represents a Type 2 Output multiplier of 2.1 (Table 9).

Impact on Employment From a direct increase in output of $45.0 Million the corresponding creation of direct jobs is estimated at 83 jobs (Table 9). Total employment, including all direct, industrial and consumption effects is estimated to increase by up to 222 jobs. This represents a Type 2 Employment multiplier of 2.7 (Table 9).

Impact on Income From a direct increase in output of $45.0 Million it is estimated that direct wages and salaries would increase by $7.2 Million (Table 9). Total wages and salaries, including all direct, industrial and consumption effects is estimated to increase by up to $18.2 Million. This represents a Type 2 Wages and Salaries multiplier of 2.5 (Table 9).

Impact on Value Added From a direct increase in output of $45.0 Million the corresponding increase in direct value-added is estimated at $13.8 Million (Table 9). Total value-added, including all direct, industrial and consumption effects is estimated to increase by up to $34.6 Million. This represents a Type 2 Value-added multiplier of 2.5 (Table 9).

Additional new employment arising from UMNC expansion

Table 10 Impact summary of proposed UMNC campus expansion on the MNC resulting in an additional 120 new jobs. Impact modelling was performed using REMPLAN v3 on the MNC. *data presented may not add up due to rounding

Employment impacts ~120 new jobs	Value added $M	Output $M	Employment FTE	Income $M
Initial	18.3	25.2	120	16.5
Flow on	12.1	22.4	76	5.5
Total	30.4	47.6	196	22.0
Multiplier	1.7	1.9	1.6	1.3

Summary Table 10 The increases in direct and indirect output would typically correspond to the creation of jobs in the economy. Corresponding to this change in employment would be an increase in the total of wages and salaries paid to employees. A proportion of these wages and salaries are typically spent on consumption and a proportion of this expenditure is captured in the local economy.

Impact on Employment From a direct increase in output of $25.2 Million the corresponding creation of direct jobs is estimated at 120 jobs (Table 10). Total employment, including all direct, industrial and consumption effects is estimated to increase by up to 196 jobs. This represents a Type 2 Employment multiplier of 1.6 (Table 10).

Impact on output From a direct increase in output of $25.2 Million it is estimated that the flow on impact would rise by $22.4 Million (Table 10). Total output, including all direct, industrial and consumption effects is estimated to increase by up to $47.6 Million. This represents a Type 2 Output multiplier of 1.9 (Table 10).

Impact on Income From a direct increase in output of $25.2 Million it is estimated that direct wages and salaries would increase by $16.5 Million (Table 10). Total wages and salaries, including all direct, industrial and consumption effects is estimated to increase by up to $22.0 Million. This represents a Type 2 Wages and Salaries multiplier of 1.3 (Table 10).

Impact on Value Added From a direct increase in output of $25.2 Million the corresponding increase in direct value-added is estimated at $18.3 Million (Table 10). Total value-added, including all direct, industrial and consumption effects is estimated to increase by up to $30.4 Million. This represents a Type 2 Value-added multiplier of 1.7 (Table 10).

9. Potential economic opportunities resulting from the presence of the UMNC

The presence of a university campus in regional Australia can influence the prosperity of the regional economy by increasing the demand for local housing supply, business demands and other opportunities, while also crucially providing a platform for knowledge generation and transfer throughout the wider community. Furthermore, universities provide access to higher education for the regional population which can lead to increasing employment opportunities and, in turn, the university can be a place of employment itself[124].

Fostering relationships between the UMNC, local sectors and businesses

Many regional universities contribute to the development of industry and businesses within their regions[125] and can become a powerhouse for economic development[126]. The MNC has a presence of not one, but five university institutions, and the collective expertise from the UMNC can become a key strength to the region[127]. The UMNC already produces graduates across a multitude of disciplines (Table 1) which can support and develop local industries and businesses if appropriate programs and networks are in place to foster such relationships.

Universities play an important role in addressing local current skills shortages if they can meet the future training, education and qualification requirements in the industry sectors in their region. This can be implemented through course development, professional development programs and investing in research and development with those industries. UNE, for example, works closely with the agricultural sector in Armidale to develop, implement and update the agricultural and animal science courses[128]. However, if there are little to no opportunities within the MNC to implement what has been learned at the UMNC, then graduates will seek employment elsewhere and the region will lose the flow-on economic and human capital benefits[129].

[124] Cadence Economics, op.cit., May, 2016.
[125] Regional Universities Network (RUN). Engaging with regions, building a stronger nation. V1. 2013
[126] Chatterton P and Goddard J. The Response of Higher Education Institutions to Regional Needs. European Journal of Education. Vol. 35, No 4. 2000.
[127] ibid
[128] ibid
[129] Cadence Economics, op.cit., May, 2016.

Continuous partnerships with, and input from local industries and businesses surrounding the course content and how it is delivered, will ensure the contemporary and relevant skills required to work in the region post-graduation can be fulfilled through university education.

The Health Care and Social Assistance sector

The largest employer on the MNC is the health care and social assistance sector (Fig. 1), comprising 18.6 % of all employment. Already, a multitude of education and training options have resulted from partnerships between TAFE and universities throughout the region focusing on the health care sector. There are additional opportunities associated with the health care sector and higher education on the MNC, involving the demographic structure of regional areas, in particular, the ageing population of the MNC. The demand for health professionals is expected to grow due to an increase in the proportion of the population over 65 years old in regional areas[130].

While the health care sector is the largest employer on the MNC and is well established to offer a suite of higher education options, the MNC is the first regional centre in NSW to offer a full-time undergraduate medical degree[131]. The next step to generating further economic prosperity within this sector and through university involvement may be to facilitate a Cooperative Research Centre (CRC) focusing on the health of an ageing population. CRC's encourage the collaboration between research and industries to address contemporary industry-specific issues[132]. The MNC is well-poised to accommodate a CRC in healthy ageing.

[130] ABS 2017 3218: Regional population growth, population estimates by remoteness Area, 2006-1016
[131] UNSW. Rural Clinical School. Last accessed: 27/07/2017. https://rcs.med.unsw.edu.au/news/unsw-offer-state%E2%80%99s-first-full-regional-medical-degree-port-macquarie-2017
[132] Cooperative Research Centres Programme – Department of Industry, Innovation and Science. Australian Government. Last accessed: 27/07/2017.
https://industry.gov.au/industry/IndustryInitiatives/IndustryResearchCollaboration/CRC/Pages/default.aspx

Research and development sector

The presence of five Universities in one region means that the MNC already has in place key knowledge infrastructure which is required for the region to be in a position to aim to become known for research, learning and development. The MNC has the potential to become one of Australia's first "knowledge regions" outside the urban "knowledge cities"[133]. Furthermore, economic growth and long-term productivity is driven by innovation and research[134] where higher GDP per capita can be linked to an increased expenditure on higher education research[135]. Becoming a regional leader in research, learning and development excellence will provide secondary flow-on benefits to the region through the following:

- The generation of spin-off companies - including consultancy agencies, industry-lead research centres, incubator units and science parks[136] [137].
- Driving the dissemination of information, knowledge and the creation of technology, methods and instruments that local businesses and industries can uptake to increase productivity[138]
- Fostering new relationships and collaborations between institutions, SMEs, industry and government to drive innovation[139].
- Encouraging entrepreneurs to remain in regional Australia through the uptake of technology released from research institutions[140].

[133] Pratchett L, Hu R, Walsh M, Tuli S. The Knowledge City Index: A tale of 25 cities in Australia. The University of Canberra, Faculty of business, law and government. 2017.
[134] Bassanini A and Scarpetta S. The driving forces of economic growth: Panel data evidence for the OECD countries', OECD Economic Studies, No. 33: 9-56, 2001, in Deloitte Access Economics. The importance of universities to Australia's prosperity. A report prepared for Universities Australia. October 2015.
[135] Deloitte Access Economics. The importance of universities to Australia's prosperity. A report prepared for Universities Australia. October 2015.
[136] Chatterton P and Goddard J. The Response of Higher Education Institutions to Regional Needs. European Journal of Education. Vol. 35, No 4. 2000.
[137] Deloitte Access Economics. The importance of universities to Australia's prosperity. A report prepared for Universities Australia. October 2015.
[138] ibid
[139] ibid and Department of Industry: More funding to boost business and innovation in NSW. Last accessed: 28/07/2017. http://www.industry.nsw.gov.au/media/media-releases/2017-media-releases/2017-media-releases/more-funding-to-boost-business-and-innovation-in-nsw
[140] Universities Australia. Startup smarts: Universities and the startup economy. Universities Australia, Canberra. March 2017

Knowledge-based sectors

In addition to research capabilities driving local economic prosperity, universities also play a critical role in improving and promoting the growth of their local knowledge-based industries and businesses[141]. The MNC, unlike other regional areas of Australia, is dominated primarily by the services sector rather than agriculture. The major drivers of the MNC economy, based on their contributions to employment, value added, exports and backwards linkages, include the following[142]:

- Health Care & Social Assistance
- Electricity, Gas, Water and Waste Services,
- Construction
- Retail Trade
- Manufacturing
- Hospitality

Furthermore, the education and training sector on the MNC is the fourth largest employer at 9.6 % of all employment[143]. The MNC has the ability for ongoing support and encouragement of the local knowledge based industries and already does so on one campus, but further expansion throughout the region is required to foster economic prosperity, innovation and development among our knowledge-based businesses and industries. In 2002, the University of the Sunshine Coast implemented an Innovation Centre, supporting local start-ups and knowledge-based businesses which has attracted other investors and businesses with a focus on science, technology and health[144].

[141] Regional Universities Network (RUN). Engaging with regions, building a stronger nation. V1. 2013.
[142] REMPLAN v3. Economy. Mid North Coast RDA (Dec 2016). Key propulsive sectors report.
[143] ABS 2016 Census.
[144] Regional Universities Network (RUN). Engaging with regions, building a stronger nation. V1 2013.

Student impacts on local sectors and businesses

Students attending the UMNC make significant contributions to the local economy, in particular towards businesses within the hospitality sector (23 % of total expenditure), arts and recreation sectors (20 % of total expenditure), the real estate sector (19 %) and the retail sector (18 %) (Fig. 13)[145].

The export revenue generated from the higher education sector is also bound to have an economic impact on the local economy and on the MNC where exports within the tertiary sub-sector are growing at a rate of 16 % p.a.[146]. It has already been proposed that education is among the five most significant drivers of the next wave of Australia's economic growth and prosperity[147]. During graduation ceremonies, orientation week, sporting and art events associated with the UMNC, the local economy would receive an injection of tourist's dollars from families and friends visiting students and participating in UMNC held events. During such times, the local businesses and sectors that are already affected by student expenditure should become opportunistic through the promotion of their services to students to ensure that students bring their family and friends to purchase goods and services from these local businesses.

While exports associated with the university sector are already competing with exports from the mining and resource sector, international education will generate the future of economic prosperity[148]. Businesses on the MNC already benefiting from the presence of the UMNC should consider expanding and targeting their market to accommodate for increasing student enrolments, which may include more international students as well as an increase in staff on the MNC in the future.

[145] Based on adjusted data for UMNC student enrolments (YTD 2017) and ASG student expenditure estimation for students beginning University in 2017.
[146] National Institute of Economic and Industry Research (NIEIR) 2016. Compiled and presented in economy.id by .id , the population experts. Op. cit.,
[147] Deloitte Access Economics. The importance of universities to Australia's prosperity. A report prepared for Universities Australia. October 2015.
[148] ibid

10. Conclusions

The university sector on the MNC is prominent as it is home to not one, but five university institutions, highlighting that the MNC is important for providing world-leading university education, and is home to key knowledge infrastructure in regional Australia. As such, the UMNC form a strong collective of higher education on the MNC and have the potential to form a vigorous research and development foundation in the region.

This will lead to future economic prosperity in the tertiary sector, while also providing flow-on benefits to other industry sectors through the dissesmination of knowledge, the development and uptake of new technology and the establishment of new companies, leading to the diversification of the local economy.

The presence of the collective UMNC is driving economic change on the MNC, via a demonstrated contribution to:

- **Output** The UMNC generate between $149.7 - $201.4 Million, or up to 81 % of the tertiary sector's total output,
- **GRP (value-added)** $95.7 – $125.6 Million is generated by the UMNC, or up to 70 % of the tertiary sector's total GRP, and 1 % of the MNC total GRP ($14.9 Billion)
- **Employment** The UMNC provide up to 1030 FTE jobs, or 1.2% of total employment (FTE) on the MNC.
- **Income** Between $61.9 – $69.2 Million or 1 % of the MNC total income.
- **Student expenditure** Students attending the UMNC generate up to 40.9 % of the UMNC total employment, UMNC students account for up to 16 % of the UMNC GRP, while also generating up to 37 % of the total UMNC output and up to 14.6 % of total UMNC income.
- **Proposed future campus expansion** A $45 Million campus expansion in the university sector will result in a construction phase which will employ a total of 222 people. The expansion will generate a further $18.2 Million in income in the region, resulting in an output of $93.3 Million and contribute $34.6 Million to total value added on the MNC.

- Post-construction phase, the campus expansion will result in the employment of an additional 120 new people within the university sector.
- This will result in a total increase of $30.4 Million in value added to the local economy, will generate a further $22 Million in income in the region and account for a further $47.8 Million in total regional output.

The UMNC is a signifcant employer on the MNC, contributing up to 1.2 % of total employment (FTE) and generating up to 1 % of the MNC $14.9 Billion in GRP, which is projected to increase given the proposed increase in student enrolment figures and campus expandions. Students enrolled in the UMNC drive significant proportions of the economic impact of the UMNC. Up to 40.9 % of employment is derived from student enrolments and student impacts account for 16 % of the overall total value added.

Local students account for close to 70 % of all students enrolled in the UMNC, highlighting that the UMNC is a key driver in the provision of university education to local people on the MNC. The UMNC are also key players in the education and training sector on the MNC, comprising up to 57 % of all student attendance across the tertiary sub-sector.

Universities of the MNC play an important role in providing education and training to the local population while also supplying the local workforce with qualified employees. Furthermore, the presence of the university sector on the MNC is becoming very important given the increasing rate of tertiary attendance on the MNC at 4.01 % per annum.

The proportion of people with tertiary qualifications on the MNC is also increasing. This is particulary notable across the workforce on the MNC, which may highlight a change in the level of qualifications required by employers on the MNC or a re-structuring of the types of employment or industry sectors present.

10. a. Recommendations and Future Opportunities

The UMNC have the ability to strengthen and achieve aspirations on the MNC and to expand visions of pursuing aspirations through university education. The UMNC have the potential to offer a variety of new courses which not only align to the region's well-established strengths such as health care, but also to esnure the opportunities to pursue education, training and qualifications across a variety of professions are within reach of people, businesses and industries on the MNC. Collectively, the UMNC are in a strong position to create a leading research and development sphere on the MNC which will further stimulate the economic prosperity of the tertiary sector and the overall economy.

Growing tertairy attendance

The overall increase in tertiary attendance on the MNC is growing at 4 % p.a., yet, despite the presence of five nationally and internationally recognised universities on the MNC that account for over half the overall tertiary attendance in the region, the overall MNC population and the overall workforce with university qualifications remains well behind both the state and national averages. The UMNC provides the people of the MNC the opportunity to engage in world leading university education to up-skill or retrain, which is imperative given the dynamic nature of the future workforce where approximately 40 % of jobs today will no longer be present in twenty years[149].

The following recommendations have been proposed and future opportunities stemming from the findings presented in this report are highlighted to increase engagement by addressing the following:

- **Increasing Indigenous participation** Despite the MNC being home to 6.2 % of the total Indigenous population, the participation of the young Indigenous population in university education remains well behind other regional areas with a strong university presence, and well below the NSW state participation rate.
    - The UMNC plays a pivitol role in providing the region's large young Indigenous population with the opportunity to engage in university education

[149] Universities Australia. Startup smarts: Universities and the startup economy. Universities Australia, Canberra. March 2017

to fulfill their career aspirations. However, the UMNC need to ensure they are places in which Indigenous students want to attend to pursue their education. This may be improved upon and encouraged by offering new courses and by improving the socio-cultural experiences for Indigenous students on campus and through the promotion of partnerships across a variety of stakeholders and industries on the MNC.

- **Increasing youth participation** The MNC youth university participation rate is also well behind the NSW state and other regional areas with a strong university presence, despite an increasing improvement in high school completion rates.
    - Coupled with one of the highest youth unemployment rates in Australia, and a gaping hole in the demographic profile from 18 years through to 39, the UMNC plays a pivitol role in ensuring that the younger population are attracted to remaining in the region post high school for both higher education and to then continue on to employment opportunities.
    - Ensuring that the opportunities to engage in higher education are relevant to the aspirations of the younger population will be critical to retain this important demographic of the overall population.
    - There must be a particular focus on how to navigate the dynamic nature of the future workforce as well as offering locally well-established employment links with businesses and industries post-graduation within the region to ensure the local human capital remains within the region to generate the "spill-over" benefits to the local economy.

- **Increasing male participation** There is a large disparity between the genders attending university or a tertiary institution on the MNC, where just over 30 % of the total attendance on the MNC can be attributed to the male population.
    - An assessment of whether males in the MNC region are interested in engaging in higher education would help address the current gender disparity.
    - Evaluating if the revlevance of the courses offered by the UMNC and other tertairy institutions align to the aspirational terrain of the male population

may establish if there is a potential opportunity to offer new courses to engage the male population.

- Currently, there are gaps present among the courses offered by the UMNC leading to careers which are traditionally popular with males including STEMM (Science, Technology, Engineering, Maths and Medicine).
- Qualifications in such courses are relevant to the region across the important businesses and industries on the MNC such as engineering and construction.

- **UMNC impact on the socio-cultural lanscape of the MNC** Given the unique university presence on the MNC, further studies would be beneficial to assess the socio-cultural impacts of the university sector on the MNC in order to fully appreciate the overall impact universities can have on a region.
  - As the university presence on the MNC is continually expanding, follow up research surrounding the economic impact of the universities is vital to track the changes throughout the regional economy and to highlight potential enhanced economic prosperity the UMNC generates within the region.
  - Additionally, the updated WRI Economic Impact of CSU report will be released in late 2017, and the data presented here may be updated if requested.

The MNC is a vital location for higher education in regional Australia due to the presence of five university campuses. The MNC has the potential to develop as a region with a strong focus on leading higher education, while also fostering research and development opportunities with local industry sectors. This will ensure there are opportunities to retain, engage and attract people in the region to participate in higher education and flow-on benefits will spill-over to the local economy.